

UTILITIES AND SERVICE SYSTEMS

4.14 UTILITIES AND SERVICE SYSTEMS

This section evaluates the potential impacts to water supply, wastewater, solid waste, and energy utilities. The City of Palo Alto is the only municipality in California that operates a full suite of City-owned utility services.

4.14.1 WATER SUPPLY AND CONSERVATION

This section discusses the regulatory framework, existing conditions, and impacts related to water supply and conservation. Water for the City of Palo Alto is provided primarily by surface water supplies purchased wholesale from the San Francisco Public Utilities Commission (SFPUC).

4.14.1.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

The following federal regulation affects water service in Palo Alto and its Sphere of Influence (SOI).

Federal Safe Drinking Water Act

The Safe Drinking Water Act authorizes the United States Environmental Protection Agency (U.S. EPA) to set national water quality standards for drinking water to protect against both naturally-occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the California Department of Public Health (CDPH) conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State Regulations

Regulation of Discharges from Drinking Water Systems

To provide coverage to discharges by water purveyors to waters of the United States in compliance with Clean Water Act section 402, the State Water Resources Control Board (SWRCB) adopted the Statewide General NPDES Permit¹ (General Order No. CAG140001) for Drinking Water System Discharges to Waters of the United States on November 18, 2014. To get coverage under the permit, a water purveyor (community drinking water system or wholesaler) must have submitted an application to the SWRCB no

¹ SWRCB, 2014. NPDES permit for drinking water system discharges to waters of the United States, http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf

UTILITIES AND SERVICE SYSTEMS

later than September 1, 2015. Alternatively, if a water purveyor does not need coverage under the permit, it must have submitted a notice of non-applicability to the SWRCB also by September 1, 2015.

California Safe Drinking Water Act

Effective in July 2014, the California Safe Drinking Water Act strengthens the federal Drinking Water Act by authorizing the State's Department of Health Services to protect the public from contaminants in drinking water by establishing maximum contaminants levels that are at least as stringent as those developed by the U.S. EPA.

California Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), which was passed in California in 1969, the State Water Resources Control Board (SWRCB) has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine Regional Water Quality Control Boards (RWQCBs) to oversee water quality on a day-to-day basis at the local and regional level. RWQCBs engage in a number of water quality functions in their respective regions. RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.² Palo Alto is overseen by the San Francisco Bay RWQCB.

California Senate Bills 610 and 221

Senate Bill (SB) 610 and SB 221 amended State law to (1) ensure better coordination between local water supply and land use decisions and (2) confirm that there is an adequate water supply for new development. Both statutes require City and County decision-makers receive detailed information regarding water availability prior to approval of large development projects. SB 610 requires the preparation of a Water Supply Assessment (WSA) for certain types of projects subject to the California Environmental Quality Act (CEQA). Projects required to prepare a WSA are the following:

- Residential development of more than 500 dwelling units.
- Shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor area.
- Hotel or motel, or both, having more than 500 rooms.
- Industrial, manufacturing, or processing plant, or industrial park planned to employ more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- Mixed-use project that includes one or more of the projects specified above.

² California Wetlands Information System. *Summary of the Porter-Cologne Water Quality Control Act*, http://resources.ca.gov/wetlands/permitting/Porter_summary.html, accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

- Project that would demand an amount of water equivalent to, or greater than, the amount of water required for 500 dwelling units.

SB 221 establishes consultation and analysis requirements related to water supply planning for residential subdivisions including more than 500 dwelling units. Written verification by the water supplier that sufficient water is available for the project is required before construction begins. The document used to determine compliance with both SB 610 and SB 221 is the *Urban Water Management Plan* (UWMP).

California Urban Water Management Planning Act

Through the Urban Water Management Planning Act of 1983, certain urban water suppliers³⁴ within California must prepare and adopt a UWMP and update it every five years. The Act is intended to support conservation and efficient use of urban water supplies at the local level. The Act requires that total projected water use be compared to water supply sources over the next 20 years in five-year increments, that planning occur for single and multiple dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency's service area along with current and potential recycled water uses.⁵ In September 2014 the Act was amended by SB 1420 to require urban water suppliers to provide descriptions of their water demand management measures and similar information.

California Groundwater Management Act

The Groundwater Management Act (AB 3030) provides guidance for applicable local agencies to develop voluntary Groundwater Management Plans (GMPs) in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facility maintenance, and water quality.⁶

The Water Conservation Act of 2009 (Senate Bill X7-7)⁷

The Water Conservation Act of 2009 requires all water suppliers to increase water use efficiency with an overall goal of reducing per capita water use by 20 percent by 2020.

³ The Act is applicable to water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually.

⁴ One acre-foot is the amount of water required to cover one acre (43,560 square feet) of ground to a depth of one foot.

⁵ Department of Water Resources. *About Urban Water Management*, <http://www.water.ca.gov/urbanwatermanagement/>, accessed February 4, 2015.

⁶ Department of Water Resources Planning and Local Assistance Central District. Groundwater, *Groundwater Management*, <http://www.cd.water.ca.gov/groundwater/gwab3030.cfm>, accessed February 4, 2015.

⁷ Department of Water Resources. Senate Bill SBX7-7 2009 Information, <http://www.water.ca.gov/wateruseefficiency/sb7/>, accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

The California Plumbing Code

The California Plumbing Code (Part 5, Title 24, of the California Code of Regulations) is part of the California Building Standards Code. The general purpose of the universal code is to prevent disorder in the industry as a result of widely divergent plumbing practices and the use of many different, often conflicting, plumbing codes by local jurisdictions. Among many topics covered in the code are water fixtures, potable and non-potable water systems, and recycled water systems. Water supply and distribution shall comply will all applicable provisions of the current edition of the California Plumbing Code.

The California Health and Safety Code

A portion of the state Health and Safety Code is dedicated to water issues, including testing and maintenance of backflow prevention devices, coloring of pipes carrying recycled water, and programs addressing cross-connection control by water users.⁸

The California Water Code

The Water Code contains many statutes surrounding various water-related issues including water shortage emergencies, reuse, recycling, treated wastewater, appropriation, and fees.

Executive Order 29-B-15 (Mandatory Water Use Restrictions)

Executive Order B-29-15, signed by Governor Brown on April 1, 2015, imposed mandatory water restrictions in California. The Order requires the SWRCB to impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 28, 2016 as compared to the amount used in 2013. In addition to requiring cities and towns to save water, the Order is intended to increase enforcement to prevent wasteful water use, streamline the State's drought response and invest in new technologies that will make California more drought resilient.

State Updated Model Water Efficient Landscape Ordinance (Assembly Bill 1881 [2006])⁹

This Ordinance requires cities and counties adopt landscape water conservation ordinances. Please see the heading “Local Regulations, City of Palo Alto Municipal Code” below for a discussion of local ordinances that are required to reduce water consumption and conserve water. Among other changes, the Executive Order directed the Department of Water Resources to revise an earlier Ordinance to provide for more efficient irrigation systems, greywater usage, on-site storm water capture, and to limit the portion of landscapes that can be covered in turf.

⁸ Sections 116800 to 116820

⁹ California Department of Water Resources, <http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>, accessed on January 22, 2016.

UTILITIES AND SERVICE SYSTEMS

California Code of Regulations, Title 22

Two State agencies have primary responsibility for regulating the application and use of recycled water: the California Department of Public Health (CDPH) and the SWRCB. Planning and implementing water recycling projects entail numerous interactions with these regulatory agencies prior to project approval.

The CDPH establishes the statewide effluent bacteriological and treatment reliability standards for recycled water uses in Title 22, Division 4 (Environmental Health) of the California Code of Regulations. Under Title 22, the standards are established for each general type of use based on the potential for human contact with recycled water.

The SWRCB is charged with establishing and enforcing requirements for the application and use of recycled water within California. Permits are required from the SWRCB for each water recycling operation. As part of the permit application process, applicants are required to demonstrate that the proposed recycled water operation will not exceed the ground and surface water quality objectives in the basin management plan, and that it is in compliance with Title 22 requirements.¹⁰

State Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)

Water Code Section 1058.5 grants the SWRCB the authority to adopt emergency regulations in certain drought years in order to “prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter’s priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports.”

On May 5, 2015, the SWRCB approved a resolution¹¹ resulting in adoption of emergency drought regulations¹² implementing the Governor’s April 1, 2015 EO mandating a statewide 25 percent reduction in potable water use. The regulations require each water supplier to California cities and towns to reduce water usage compared to 2013 levels for the compliance period June 2015 through February 2016. The conservation target for each city, town, or water supplier depends on the residential gallons per capita per day used by that city, town or water supplier. The City of Palo Alto is required to reduce potable water use by 24 percent during the compliance period compared to the same period in 2013 and must report use on a monthly basis to SWRCB, through February 2016.

¹⁰ Further information is available at the following links: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/statutes_regulations.shtml, <http://www.sdcwa.org/recycled-water>. Accessed October 21, 2015.

¹¹ SWRCB Resolution 2015-0032, http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/rs2015_0032_with_adopted_regs.pdf, accessed October 21, 2015.

¹² California Office of Administrative Law, Notice of Approval of Emergency Regulatory Actions, http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/oal_approved_regs2015.pdf, accessed October 21, 2015.

UTILITIES AND SERVICE SYSTEMS

Local Regulations

The following are regional and local plans and regulations affecting water service in Palo Alto.

As the primary water resources agency for Santa Clara County, the SCVWD has a Comprehensive Water Resources Management Plan that outlines the key water resource issues facing the county and provides a framework for understanding the SCVWD's policies related to water supply, natural flood protection, and water resources stewardship. The Plan provides factsheets for all cities within Santa Clara County that include shared responsibilities with SCVWD, citywide programs and projects related to water resources management issues, and lists of related Comprehensive Plan elements.

2010 Urban Water Management Plan

In compliance with the SB X7-7 and the Urban Water Management Planning Act, the City Council of Palo Alto adopted its 2010 UWMP in June 2011. Every five years, an UWMP is prepared and submitted as required to the California Department of Water Resources (DWR), per the Urban Water Management Planning Act. The (2015) UWMP update is due June 30, 2016.¹³ SCVWD, which coordinates with City of Palo Alto Utilities (CPAU) as a planning partner and potential future service provider, also adopted its 2010 UWMP in May 2011.

City of Palo Alto Municipal Code

The City of Palo Alto Municipal Code contains all ordinances for the City. The Municipal Code is organized by Title, Chapter, and Section.

Chapter 12.32.010, Water Use Regulation

Chapter 12.32 of the City's Municipal Code prohibits some water uses in order to avoid unnecessary water waste. The regulation includes the following provisions:

- Flooding or runoff of potable water is prohibited.
- A shut-off valve is required for hoses used to wash vehicles, sidewalks, buildings, etc.
- Potable water for construction uses is prohibited if non-potable water is available.
- Broken or defective plumbing and irrigation systems must be repaired or replaced within a reasonable period.

Additional restrictions apply during droughts, as discussed further below.

¹³ City of Palo Alto, Urban Water Management Plan web page, <http://www.cityofpaloalto.org/gov/depts/utl/eng/water/watermgmt.asp>, accessed October 16, 2015.

UTILITIES AND SERVICE SYSTEMS

Chapter 12.32.040, Indoor and Outdoor Water Efficiency

Pursuant to the California Water Conservation in Landscaping Act, also known as the State Landscape Model Ordinance, Government Code Section 65591, *et seq.* as amended, a city is required to adopt the State Landscape Model Ordinance or equivalent local landscape water efficiency requirements that are "at least as effective" as the State ordinance in conserving water. The Palo Alto City Council has adopted requirements that are at least as effective in reducing landscaping water use, also known as outdoor water use, as well as additional requirements for existing landscapes and indoor water use in Municipal Code Chapter 16.14 (California Green Building Code).

Chapter 16.12 (Recycled Water) and 16.14 (Green Building)

Chapters 16.12 and 16.14 contain requirements related to recycled water, including new construction requirements related to dual plumbing and irrigation. Requirements in Chapter 16.12 include recycled permit requirements, as well as requirements for recycled water application for irrigation and toilet fixtures. Chapter 16.14 addresses the City's adoption of the 2013 California Green Building Standards, which require new buildings to reduce water consumption by 20 percent. On April 20, 2015, the Palo Alto City Council adopted an ordinance¹⁴ repealing and restating Palo Alto Municipal Code Chapter 16.14 to adopt and amend the 2013 California Green Building Standards Code, Title 24, Part 11 of the California Code of Regulations (CALGreen). The technical implications include more stringent requirements in the following areas: 1) "laundry-to-landscape ready" infrastructure for residential buildings; 2) water-efficient landscape strategies; and 3) CALGreen Residential Tier 1 and Tier 2 standards for new residential and residential alteration projects in lieu of the prior Build It Green framework.

Additional City of Palo Alto Potable Water Use Restrictions – Resolution 9509, May 11, 2015

In response to the current drought, the Palo Alto City Council on May 11, 2015 approved a Resolution¹⁵ amending Appendix H, "Water Shortage Contingency Plan Use Restrictions," of the 2010 *Urban Water Management Plan*, in compliance with the SWRCB's emergency drought regulations. The Resolution implemented the following additional potable water use restrictions:

- Landscape or turf irrigation with potable water shall not be allowed between 10:00 a.m. and 6:00 p.m., except for drip irrigation, soaker hoses, and hand watering.
- The application of potable water to landscapes or turf during and within 48 hours after a measurable rainfall is prohibited.

¹⁴ City of Palo Alto, City Council Staff Report (#5667), meeting date April 20, 2015, <http://www.cityofpaloalto.org/civicax/filebank/documents/46802>, accessed October 16, 2015.

¹⁵ City of Palo Alto, City Council Staff Report (ID # 5724), May 11, 2015 meeting, <http://www.cityofpaloalto.org/civicax/filebank/documents/47118>, accessed October 16, 2015.

UTILITIES AND SERVICE SYSTEMS

- The irrigation of ornamental landscapes or turf with potable water more than two days per week is prohibited. Customers may apply for City approval of an alternative irrigation schedule that achieves an equivalent or greater potable water use reduction, but under no circumstances shall outdoor irrigation of ornamental landscapes or turf with potable water be permitted to occur seven days per week.
- The application of potable water to driveways and sidewalks is prohibited, except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a State or federal agency.
- The use of potable water in a fountain or other decorative water feature is prohibited, except where the water is part of a recirculating system.
- Restaurants and other food service operations shall serve water to customers only upon request.
- Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

The City will notify customers when an incident is observed. This may be through use of a door hanger, email, phone call, or letter. Multiple incidents are subject to fines and potential use of a flow restrictor on the water service.

The City of Palo Alto water use restrictions listed above are imposed in response to the drought and State mandates to conserve water. They correspond to Stage II of the City's *Water Shortage Contingency Plan* (WSCP) in the 2010 UWMP, as amended by the resolution.

Additional restrictions identified in the WSCP to be applied in subsequent and progressive stages (III and IV) of droughts or other water supply shortages include the following:

Stage III

All water use restrictions for Stage II, and the following:

- Newly constructed pools, spas, and hot tubs may not be filled.
- Outdoor water use audits are required for those customers continuing to use more than target allotments for three months.
- Commercial car washes must use recycled water systems, if economically feasible.
- Verified water waste will serve as *prima facie* evidence that the allocation assigned to the water account is excessive and subject to reduction.
- The use of potable water on golf courses is limited to putting greens and tees.
- The use of potable water for street sweepers/washers is prohibited.

UTILITIES AND SERVICE SYSTEMS

Stage IV

All water use restrictions for Stages II and III, and the following:

- No new water service hookups unless customer pays for sufficient conservation elsewhere to offset anticipated water use.
- No new landscaping installed at new construction sites.
- Turf irrigation prohibited.
- Once-through cooling systems must be converted to recycling systems.
- The washing of all vehicles is prohibited outside of a commercial washing facility that recycles its water.
- Irrigation by sprinklers is prohibited.

Existing Conditions

This section describes water supply sources, water supply infrastructure, water treatment facilities, projected water demand and supply, and water conservation initiatives and goals.

Water Supply Sources, Planning, and Infrastructure

The City of Palo Alto Water Utility serves approximately 16,000 residential customers (meters) and approximately 3,500 non-residential customers.¹⁶ The local distribution system includes 236 miles of water piping.

Palo Alto purchases 100 percent of its potable water from the SFPUC. This water is delivered from the City and County of San Francisco's Regional Water System (RWS), operated by the SFPUC. This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties.

The City also maintains several critical interconnections with neighboring water utilities that can be activated during critical events to ensure water supplies are not impacted and also to provide mutual aid to neighboring communities.¹⁷ Interties exist with the following water agencies: the City of East Palo Alto, the City of Mountain View, Purissima Hills Water District, and Stanford University.

Stanford University, located within the SOI but outside the city boundaries, owns and operates a discrete domestic water system for campus buildings and fire protection.¹⁸ The domestic water is primarily supplied

¹⁶ City of Palo Alto Utilities GIS database.

¹⁷ City of Palo Alto, 2010 Urban Water Management Plan, May 2011

¹⁸ Stanford; sustainability and Energy Management web page, http://lbre.stanford.edu/sem/water_Systems, accessed October 23, 2015

UTILITIES AND SERVICE SYSTEMS

by the SFPUC. Stanford's domestic water system has multiple connections to the SFPUC Regional Water System. Domestic water from Stanford's reservoirs in the foothills supplies the campus by gravity through three pressure zones and an extensive distribution pipe network. Stanford's potable water supply from SFPUC is backed up by Stanford's own water wells that produce potable water and would be activated in the event of disruption in the SFPUC supply.

Stanford's lake water system provides the irrigation water for the University's campus landscaping, athletic fields, golf course, and leaseholds' agriculture. Creeks, dams, and lakes on Stanford property supply the non-potable water to an infrastructure system of pump stations and pipelines for delivery to the campus, mostly by gravity. This water supply system dates back to the early days of the University and has been preserved and operated since then, reducing the amount of imported water that Stanford would otherwise need to meet its needs. Stanford's water wells supplement the surface water supply as needed, based on annual rainfall. The creek diversion facilities include provisions for accommodating fish passage and habitat, including fish ladders and screened intakes. Stanford has developed a recycled water system on campus, starting with the construction of a new recycled water treatment plant (RWTP) at Stanford's Central Energy Facility (CEF).

San Francisco Public Utilities Commission – Surface Water Supply via Wholesale Purchase

Since 1962, when Palo Alto's groundwater supply wells were discontinued as the primary water system, 100 percent of the City's water supply has been purchased wholesale from the regional surface water supply system operated by the SFPUC.¹⁹ The SFPUC and the City (and other wholesale customers of SFPUC) entered into a Water Supply Agreement (WSA) in July 2009. The WSA addresses the rate-making methodology used by SFPUC in setting wholesale water rates for its wholesale customers and also addresses water supply and water shortages for the system. The WSA has a 25-year term. Palo Alto's Individual Supply Guarantee (ISG) is 17.07 million gallons per day (MGD) (or 19,118 acre-feet/year [AFY]); this is its share of the 184 MGD allocated for the Bay Area Water Supply and Conservation Agency (BAWSCA) members (i.e., the wholesale customers of the SFPUC).

Stanford University, located within the City's SOI, is also a wholesale customer of SFPUC. Stanford's ISG is 3.03 MGD.

The *Water Shortage Allocation Plan* (WSAP) between the SFPUC and its wholesale customers, adopted as part of the WSA, addresses shortages of up to 20 percent of system-wide use. The *Tier 1 Shortage Plan* allocates water from the RWS between San Francisco retail customers and the wholesale customers. The WSA also includes a *Tier 2 Shortage Plan*, which would allocate the available water from the SFPUC system among the wholesale customers. In August 2010, the BAWSCA agencies reached agreement on a new *Tier 2 Shortage*

¹⁹ Palo Alto did use groundwater in 1988 and 1991 during an extended water supply shortage to supplement supplies and in 1977 during a labor dispute in San Francisco.

UTILITIES AND SERVICE SYSTEMS

Plan and on February 7, 2011, the Palo Alto City Council approved the new *Tier 2 Water Shortage Implementation Plan*, which will remain in effect through 2018.²⁰

In January 2014, the Governor of California declared a state of emergency due to severe drought conditions. Subsequently, the SFPUC requested a 10 percent voluntary water use reduction by all retail and wholesale customers. The City responded by implementing Stage I of the WSCP as outlined in its 2010 UWMP, including increasing public outreach efforts. In addition, the City increased its water conservation program efforts and doubled the rebate for removal of lawns and replacement with drought tolerant landscaping. The City's conservation efforts have resulted in a savings of 16 percent²¹ for the period of June 2014 through February 2015, compared with 2013. As noted above, in response to SWRCB emergency drought regulations, the City began implementing an amended version of Stage II of its WSCP in May 2015.

The SFPUC approved a water delivery limitation from the RWS of 265 MGD until 2018, when it adopted the Water System Improvement Program (WSIP) and certified the Program Environmental Impact Report on October 30, 2008. This 265 MGD Interim Supply Limitation (ISL) for the system allocated 184 MGD to the BAWSCA agencies and 81 MGD to San Francisco. The intent of the ISL was to establish an interim water supply planning horizon that defers decisions on long term water supply issues until after 2018, when additional information will be available, particularly on the impact of water diversion from the Tuolumne River. The ISL does not impact the seismic, public health, and deliverability level of service goals that were identified in the WSIP. The penalty mechanism in the ISL, which provides for a substantial "Environmental Enhancement Surcharge," is only triggered if the SFPUC and the BAWSCA agencies collectively exceed the 265 MGD limitation.

In December 2010, the SFPUC finalized the distribution of the 184 MGD BAWSCA ISL allocation to the individual BAWSCA members. According to SFPUC Resolution No. 10-0213, Palo Alto's Interim Supply Allocation (ISA) is 14.70 MGD (or 16,477 AFY). Section 4 of the CPAU's 2010 UWMP includes updated demand projections. Based on these projections, the City does not anticipate exceeding the 14.70 MGD ISA during the ISL period ending in 2018. The ISA is distinct from the ISG. The ISG is a perpetual entitlement for water delivered from the SFPUC system that survives the expiration of the current water delivery contract. The ISA is an interim water delivery limitation intended to accomplish the goals outlined in the adopted WSIP, and it automatically expires in 2018 (per SFPUC Resolution 10-0213, adopted December 14, 2010).

According to SFPUC Resolution No. 10-0213, Stanford University's ISA is 2.91 MGD.

²⁰ City of Palo Alto Staff Report, Drought Implementation Plan, ID #1308.

²¹ City of Palo Alto, City Council Staff Report (ID # 5724), May 11, 2015 meeting, Appendix F, <http://www.cityofpaloalto.org/civicax/filebank/documents/47118>.

UTILITIES AND SERVICE SYSTEMS

SFPUC Retail Drought Response

The SWRCB has taken a series of actions to address the increasing severity of water supply conditions across the State and implement the Governor's Order, as outlined above. Many of these actions impose specific restrictions on urban water suppliers and outdoor water use. SFPUC's drought response regulations are described in the 2015-2016 Drought Program,²² dated May 2015. The City of Palo Alto also adopted additional potable water use restrictions on May 11, 2015, as outlined above. State and local actions are summarized above in Section 4.14.1.1, Environmental Setting.

Regional Coordination of Water Conservation, Supply, and Recycling Activities

BAWSCA was created on May 27, 2003 to represent the interests of 26 cities and water districts as well as two private utilities in Alameda, Santa Clara, and San Mateo Counties that purchase water on a wholesale basis from the San Francisco RWS. BAWSCA directly represents the needs of the cities, water districts, and private utilities that depend on the RWS. BAWSCA provides these customers with an ability to work with SFPUC on an equal basis to ensure reliable operation of the regional system and to collectively and efficiently meet local responsibilities. BAWSCA has the mandate to coordinate water conservation, supply and recycling activities for its agencies; acquire water and make it available to other agencies on a wholesale basis; finance projects, including improvements to the RWS; and build facilities jointly with other local public agencies or on its own to carry out the agency's purposes.

As a member of BAWSCA, the City is formally represented on the BAWSCA Board of Directors on matters involving decision-making, policy setting and issues of interest to the BAWSCA members. On the staff level, the City participates on several advisory and policy committees, including the Water Quality Committee and the Technical Advisory Committee.

BAWSCA's water management objective is to ensure that a reliable, high quality supply of water is available where and when people within the BAWSCA service area need it. A reliable supply of water is required to support the health, safety, employment, and economic opportunities of the existing and expected future residents in the BAWSCA service area and to supply water to the agencies, businesses, and organizations that serve those communities.

BAWSCA is developing the Long-Term Reliable Water Supply Strategy (Strategy) to meet the projected water needs of its member agencies and their customers through 2035, and to increase their water supply reliability under normal and drought conditions. The Strategy is proceeding in three phases. Phase I was completed in 2010 and defined the magnitude of the water supply issue and the scope of work for the Strategy. Phase II of the Strategy resulted in a refined estimate of when, where, and how much additional supply reliability and new water supplies are needed throughout the BAWSCA service area through 2035; a

²² San Francisco Public Utilities Company, <http://sfwater.org/modules/showdocument.aspx?documentid=7228>, accessed October 28, 2015.

UTILITIES AND SERVICE SYSTEMS

detailed analysis of the water supply management projects; and the development of the Strategy implementation plan.²³ The Final (Phase III) Strategy Report will incorporate the results of additional work and present the recommended Strategy and the associated Strategy implementation plan (i.e., who will do what by when). Phase III will include the implementation of specific water supply management projects. Depending on cost-effectiveness, as well as other considerations, the projects may be implemented by a single member agency, by a collection of the member agencies, or by BAWSCA in an appropriate timeframe to meet the identified needs. Project implementation will continue throughout the Strategy planning horizon, in coordination with the timing and magnitude of the supply need. The development and implementation of the Strategy will be coordinated with the BAWSCA member agencies and will be adaptively managed to ensure that the goals of the Strategy (i.e., increased normal and drought year reliability, are efficiently and cost-effectively being met). The City is participating in the Strategy and has submitted several potential projects for review.

The City anticipates these projects will be evaluated during subsequent project phases, but also as part of several other regional efforts that are simultaneously underway. These efforts include the Palo Alto Regional Water Quality Control Plant (RWQCP) *Long Range Facilities Plan* (LRFP) and the SCVWD *Water Supply and Infrastructure Master Plan*. The City is actively participating on all of these efforts in conjunction with the BAWSCA study.

Groundwater

The City's original water well system consisted of five wells (Hale, Rinconada, Peers Park, Fernando, and Matadero) with a combined total rated capacity of 4,300 gallons per minute (GPM). These wells were constructed in the mid-1950s and were operated continuously until 1962. In 1988, the wells were operated to provide supplemental supplies as SFPUC implemented mandatory rationing. Two of the wells were operated for about a month and a half in 1991 when it appeared that the City was facing a severe (45 percent) cutback requirement. Besides normal annual operational testing, the wells have not been used since 1991.

From 1999 to 2003, the City completed numerous studies that provided significant analysis of City-owned wells and the local distribution system. The analysis is discussed in detail in the 2005 UWMP.²⁴ The results of the studies provided a significant amount of information regarding the costs and operational issues of wells for emergency use, drought-only supply, and full-time operation.

²³ Bay Area Water Supply and Conservation Agency, 2012, *Phase II Long-Term Reliable Water Supply Strategy Report, Vol I*. July 30. http://bawasca.org/docs/BAWSCA%20PH%20II%20A%20Final%20Report_2012_07_03%20Revised%20073012.pdf, accessed October 23, 2015.

²⁴ City of Palo Alto, 2010 Urban Water Management Plan, page 24. Note: The studies referenced can be found in the 2005 Urban Water Management Plan on pages 17 to 18.

UTILITIES AND SERVICE SYSTEMS

SCVWD is the groundwater management agency in Santa Clara County as authorized by the California legislature under the SCVWD Act, California Water Code Appendix, Chapter 60.²⁵ Groundwater conditions throughout the county are generally very good, as SCVWD efforts to prevent groundwater basin overdraft, curb land surface subsidence, and protect water quality have been largely successful. Since the drought period of 1987 to 1992, groundwater elevations have generally recovered from overdraft conditions throughout the basin, inelastic land subsidence has been curtailed, and groundwater quality supports beneficial uses. The groundwater basin is not adjudicated, meaning water rights have not specifically been established by the courts to determine who can pump groundwater, how much groundwater can be pumped, and how the process is managed.

Since the publication of the 2005 UWMP, the City completed the environmental review for the Emergency Water Supply and Storage Project.²⁶ The project, now complete, consisted of the repair and rehabilitation of the five existing wells, construction of three new wells, construction of a new 2.5 million gallon storage reservoir and associated pump station, and other upgrades to the system. The groundwater quality of the City's wells is considered fair to good quality, though significantly less desirable in comparison to the imported SFPUC supply. The groundwater is approximately six times higher in total dissolved solids (TDS) and hardness. The Emergency Water Supply and Storage Project's primary goal was to correct the deficiency in the City's emergency water supply. The project supports a minimum of eight hours of normal water use at the maximum day demand level and four hours of fire suppression at the design fire duration level. The groundwater system may also be used to a limited extent for water supply during drought conditions (up to 1,500 AFY), and is capable of providing normal wintertime supply needs during extended shutdowns of the SFPUC system. The project provides up to 11,000 GPM of reliable well capacity and 2.5 million gallons (MG) of water storage for emergency use.

The Emergency Water Supply and Storage Project includes groundwater wells as a potential supply source for use during a prolonged drought. As specified in the EIR for the project, concern over prolonged groundwater pumping in the area resulted in a maximum production limitation of 1,500 AFY during a drought.²⁷ If the wells were to be used as a dry year supply option, the City would need to coordinate with CDPH to ensure the necessary treatment was in place to meet regulatory standards for this purpose. In addition, several other issues will need to be addressed prior to the use of the wells during a drought, including the capital costs of any treatment or blending upgrades that may need to occur, water quality issues compared to the City's SFPUC source, customer acceptance, SCVWD groundwater production costs, and the exact mechanism for how groundwater production would form a part of any drought response portfolio. At this time, the City has no plans to use groundwater, but will evaluate using ground water if needed for supplemental supply if the SFPUC calls for higher levels of water use reduction.

²⁵ SCVWD Groundwater Management Plan, July 2001.

²⁶ City of Palo Alto, <http://www.cityofpaloalto.org/gov/depts/utl/eng/water/emergency/default.asp>, accessed October 28, 2015.

²⁷ Final Environmental Impact Report, City of Palo Alto Emergency Water Supply and Storage Project, SCH #2006022038.

UTILITIES AND SERVICE SYSTEMS

Exchange or Transfer Opportunities

Because the existing San Francisco RWS may not have sufficient supplies in dry years, dry-year water transfers are potentially an important part of future water supplies. The City has undertaken three activities to support such transfers:

- From 1996 to 2000, the City participated in the development of the *SFPUC-BAWSCA Water Supply Master Plan* (WSMP), which identified dry-year purchases as an important part of the future water supply. The discussion in the WSMP includes purchasing additional Tuolumne River water and water from willing sellers located geographically south of the Delta who possess water rights or contractual entitlements to water diverted from the Delta. In addition, the WSMP identifies potential opportunities for water purchases from willing sellers upstream of the Delta along the Sacramento, Feather, Yuba, American, and San Joaquin Rivers and their tributaries. The WSMP was formally adopted by the SFPUC and implementation of the WSMP (including investigating dry-year transfers) is ongoing.
- In January 2011, the Palo Alto City Council approved a new *Water Shortage Implementation Plan* to allocate water between the BAWSCA members. This plan includes the ability to transfer water allocated to the BAWSCA agencies between BAWSCA members during drought periods. All the BAWSCA agencies have adopted the plan.
- The City is monitoring the development of a water transfer market in California, including a mechanism for BAWSCA members to transfer contractual entitlements on the SFPUC system. The City supports SFPUC's efforts to pursue cost-effective dry-year water transfers as part of the overall water supply for the RWS. BAWSCA has the ability to pursue water transfers on its own as long as a wheeling²⁸ arrangement can be negotiated with the SFPUC.

Recycled Water Supply and Distribution

The City owns and operates the Palo Alto Regional Water Quality Control Plant (RWQCP), a wastewater treatment plant, for the East Palo Alto Sanitary District, Los Altos, Los Altos Hills, Mountain View, Palo Alto, and Stanford University. Wastewater from the City and these communities is treated by the RWQCP prior to discharge to the Bay.

The majority of the wastewater treated at the RWQCP could be recycled. The plant already has some capability to produce recycled water that meets the Title 22 unrestricted use standard. In September 2010, the RWQCP completed installation of a new ultraviolet disinfection facility, which will allow a gradual increase in the amount of recycled water that meets the Title 22 unrestricted use standard if demand

²⁸ In 1986, the Legislature adopted "water wheeling" statutes (Water Code Section 1810-1814) that prohibit public water agencies from withholding use of their canals and pipelines when unused capacity is available and fair compensation is paid. The idea is to encourage water from land with excess water rights, such as certain farms, to urban areas. Source: *Water: Ruling for Met Water District Strikes at "Water Wheeling" Plans*, California Planning & Development Report, July 1, 2000.

UTILITIES AND SERVICE SYSTEMS

requires an upgrade to the recycled water storage capacity. The remaining treated wastewater meets the restricted use standard and can also be recycled.

The recycled water produced by the RWQCP – under Phase 1 (1980) and Phase 2 (2009) of the City’s Water Reuse Program -- is currently being used for the following:

- Irrigation water for Greer Park in Palo Alto (87 AFY).
- Irrigation water for the Palo Alto Municipal Golf Course (109 AFY).
- Various uses at the Palo Alto Municipal Service Center, including use for street sweepers, dust control at construction sites, vehicle washing, and irrigating road median strips.
- A new pipeline to serve Shoreline Park and other customers in Mountain View completed in summer 2009. The new pipeline delivered approximately 391 AFY of recycled water in 2010; 250 AF were delivered via the pipeline in 2013 and is projected to deliver approximately 1,500 AFY at peak production.
- Water for enhancements at the Emily Renzel Marsh in Palo Alto. The RWQCP pumps from 1.0 to 1.5 MGD of water into the 14-acre freshwater marsh. This water does not get the full, recycled water treatment, just the standard tertiary treatment from the plant (restricted use standard). The recycled water used in the marsh enhancement project does not replace potable water (average of 1.2 MGD, or 1,344 AFY).
- Water for the Duck Pond in Palo Alto (36.83 AFY).
- Water for irrigation in and around the RWQCP and in processes at the plant itself. The amount of recycled water that replaces potable water for this use is about 0.5 MGD, or 560 AFY. That usage can be broken down as about 0.2 MGD for landscape irrigation and about 0.3 MGD for mechanical seals and cooling water for the oil cooler on the blowers. An additional 1 MGD (1,120 AFY) of recycled water is used at the RWQCP as stack scrubber water, but this use does not replace potable water.
- Water that can be collected by trucks at the plant to be used for dust control at construction projects, for irrigation, and in street sweepers. The quantities of this use vary, but can be up to 5,000 gallons per day.

The City has participated in various regional recycled water planning initiatives:

- The City completed the *Water Reclamation Master Plan* (1992) for the service territory of the RWQCP. This Master Plan identified a five-year, three-stage implementation for recycled water development in the service area of the RWQCP. At the same time, the City decided not to pursue any of the recommended expansion stages of a water recycling system as the cost of the projects could not be justified. The City also adopted a policy to monitor conditions that would trigger further evaluation of the Master Plan projects.

UTILITIES AND SERVICE SYSTEMS

- The City is a stakeholder in the ABAG-led effort to secure grant funding for a *Bay Area Integrated Regional Water Management Plan* (IRWMP) and for projects identified in that IRWMP.
- CPAU and the partners of the RWQCP committed to assist in the funding of a project to build a new recycled water pipeline from the RWQCP to Mountain View. This is sized to accommodate future expansion of recycled water use in the city and the project was completed in summer 2009.
- The City is a member of the California Water Reuse Association, which helps promote and implement water recycling in California.
- The City is a member of the Bay Area Recycled Water Coalition, a group of regional recycled water project proponents that advocate for and seek funding from the Federal Bureau of Reclamation under Title 16.
- The City actively participates on the SCVWD Recycled Water Committee. The Committee is a group of recycled water retailers and wholesalers that meets bimonthly to discuss issues and challenges surrounding the use and promotion of recycled water.
- The City actively participates on the Bay Area Clean Water Agencies Recycled Water Committee. The Committee is a group of recycled water producers who meet monthly to discuss issues and challenges surrounding expanding recycled water projects.

Recycled water from the RWQCP contains higher than expected total dissolved solids (TDS; i.e., “salinity”) compared to average potable source water concentrations of the RWQCP partners. The City in partnership with the other RWQCP partners developed a Recycled Water Salinity Reduction Policy to identify and pursue all cost effective measures to reduce the salinity of the recycled water over time. The Palo Alto City Council approved the Salinity Reduction Policy on January 10, 2010.

On September 28, 2015, the Palo Alto City Council adopted a resolution certifying the Environmental Impact Report for the expansion of the recycled water project within South Palo Alto towards Stanford Research Park. The project would deliver recycled water produced by Palo Alto’s RWQCP to parks and commercial customers in and along the pipeline route to the Stanford Research Park. The Palo Alto Recycled Water Project is considered Phase 3 of the City of Palo Alto Water Reuse Program. The Recycled Water Project is envisioned to serve approximately 800 AFY of recycled water, mostly in the Stanford Research Park Area. Future extensions could serve Stanford University and Los Altos Hills, as well as provide a loop connecting the Phase 2 Mountain View Project. The Palo Alto Recycled Water Project would provide recycled water primarily for landscape irrigation; however, commercial and light industrial use as well as toilet and urinal flushing will also be considered. The project would involve the construction of approximately six miles of 12- to 18-inch pipes, a booster station, and lateral pipelines carrying recycled water to over 50 use sites.

UTILITIES AND SERVICE SYSTEMS

Climate Change

As noted above, Palo Alto's water supply comes largely from the Sierra Nevada snowpack. Over the last century, the average early spring snowpack runoff has decreased by about 10 percent, a loss of 1.5 million acre-feet of water. Looking forward to the coming decades, the State of California predicts that higher temperatures will melt the Sierra snowpack earlier and drive the snowline higher, and that a growing proportion of winter precipitation will fall as rain instead of as snow, further reducing the snowpack.²⁹ Using historical data in conjunction with climate and hydrologic models, the Department of Water Resources projects that the Sierra Nevada snowpack may be further reduced from its mid-20th century average by 25 to 40 percent by 2050.³⁰ This will pose challenges not only to the amount of water supply available, but also to water storage and conveyance facilities designed based on historical snowpack levels.

Locally in Santa Clara County, extreme weather events have become more frequent over the past 40 to 50 years, and the trend of extreme weather events is projected to continue. Extreme weather patterns could lead to changes in rainfall distribution and intensity, resulting in fewer but more intense rainfall events followed by prolonged dry periods. More intense heat waves may cause more droughts.³¹ Prolonged dry periods in Palo Alto and the Bay Area could contribute to the evaporative loss of potable water from SFPUC's local surface water supplies.

Water Demand and Supply Projections

The Governor declared a "statewide water emergency" in January 2014, which primarily means that water can be moved more freely around the state. The declaration also alerts the public to have heightened awareness and that all water agencies should implement their contingency plans. Palo Alto is complying in accordance with contingency measures in the 2010 UWMP. The City's primary water supplier, the SFPUC, announced a call for a 10 percent voluntary reduction effective February 1, 2014.

As described in Section 4.14.1, Executive Order B-29-15 requires the SWRCB to impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage for June 1, 2015 through February 28, 2016 compared to 2013. The SWRCB placed the City of Palo Alto in a 24 percent conservation tier. Cumulatively from June 1 through December 3, 2015, Palo Alto's water savings are about 33.6 percent compared to 2013 levels.³²

The two other drought periods since 1975 have had a profound effect on City and customer attitudes as well as how water is used. Substantial capital investments were made in 1977 toward more water-efficient

²⁹ California Natural Resources Agency, 2009 California Climate Adaptation Strategy, 2009, page 82, http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf, accessed October 27, 2015.

³⁰ California Department of Water Resources (DWR), 2008, *Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water*, <http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf>, accessed October 27, 2015.

³¹ Santa Clara County, 2011, *Santa Clara County Hazard Mitigation Plan*, pages 4-1 and 4-44.

³² City of Palo Alto, 2015. Water & Drought Update web page, <http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=2336&TargetID=235,310#How Is Palo Alto Doing>, accessed December 9, 2015.

UTILITIES AND SERVICE SYSTEMS

equipment in the commercial and industrial sectors. New construction in every sector is subject to increasingly stringent regulations regarding water-using appliances and fixtures.

The water demand projections for the 2010 UWMP were developed with the same “end use” model that was used to develop the projections in the 2005 UWMP. Two main steps are involved in developing an end use model: 1) establishing base-year water demand at the end-use level (e.g., toilets, showers) and calibrating the model to initial conditions; and 2) forecasting future water demand based on future demands of existing water service accounts and future growth in the number of water service accounts.

A Demand Management Measure (DMM) is a specific action taken by a water supplier to reduce water demand in support of its water conservation efforts. The Urban Water Management Planning Act identifies 14 DMMs that are to be evaluated in each UWMP (Water Code Section 10631(f)). An urban water supplier’s UWMP must document implementation of its DMMs by either providing the required information for each DMM or submitting a copy of its 2009-2010 approved California Urban Water Conservation Council (CUWCC) Best Management Practices (BMP) report, if the supplier is a signatory to the CUWCC Memorandum of Understanding (MOU) regarding urban water conservation in California. The City has been a signatory to the MOU since 1991.

Using baseline projections, it is expected that total water consumption in the city will remain somewhat constant and, without the DMMs, would increase by about 29 percent from a level of 11,236 AF per year in 2010 to 15,949 AF per year by the end of 2030. This forecast includes an expected 17 percent increase in the total number of accounts. This baseline projection includes anticipated effects of the CPC on overall water use as well as expected ongoing conservation efforts among customers. After incorporating the impact of DMMs, total sales are expected to increase by 17 percent from the period 2010 to 2030. The City’s water sales in FY 2013 were 11,702 AF.

Total water sales decreased by 22 percent, from 14,335 AF to 11,236 AF per year between 2000 and 2010. For the 2010 UWMP’s forecast period (2010 – 2030), Table 4.14-1 shows demand projections by customer type before and after incorporating the impact of planned DMMs (discussed in detail in the 2010 UWMP, Chapter 5). Total demand projections after netting out the impact of DMMs are shown at the bottom of Table 4.14-1.

The projections in Table 4.14-1 do not account for the SWRCB’s emergency “voluntary” water use restrictions³³ adopted in July 2014, and extended by the SWRCB’s March 17, 2015 regulations, nor does the table reflect the SWRCB’s emergency “mandatory” water use restrictions³⁴ effective on May 18, 2015 that will expire on February 16, 2016.

³³ SWRCB Resolution No. 2014-0038 to adopt an emergency regulation for statewide urban water conservation, http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2014/rs2014_0038_regs.pdf, accessed October 19, 2015.

³⁴ California Office of Administrative Law, Notice of Approval of Emergency Regulatory Actions, http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/oal_approved_regs2015.pdf, accessed October 19, 2015.

UTILITIES AND SERVICE SYSTEMS

TABLE 4.14-1 ACTUAL AND PROJECTED WATER SALES (WITH AND WITHOUT DMMS) (CITY ONLY)

Segment	Actual Sales Data				Forecast			
	2000	2005	2010	2000-2010 Change	2015	2020	2025	2030
Single-Family								
Accounts	14,737	14,941	15,458	5%	16,237	17,268	18,003	19,720
Units (AFY)	6,494	5,927	5,334	-18%	7,106	7,429	7,640	8,269
Multiple-Family								
Accounts	1,919	1,947	2,248	15%	2,110	2,244	2,339	2,563
Units (AFY)	2,469	1,986	1,806	-27%	2,374	2,459	2,510	2,699
Commercial								
Accounts	1,621	1,755	1,870	13%	1,476	1,481	1,511	1,545
Units (AFY)	2,933	2,465	2,311	-21%	2,367	2,321	2,319	2,331
Industrial								
Accounts	245	254	251	3%	224	225	229	234
Units (AFY)	1,518	1,007	847	-44%	1,262	1,264	1,287	1,313
City Facilities								
Accounts	232	299	322	28%	319	340	354	388
Units (AFY)	607	564	544	-11%	679	723	753	830
Public Facilities								
Accounts	62	85	89	30%	71	76	79	86
Units (AFY)	314	268	395	26%	413	441	461	507
Total Retail Sales					Projected Water Sales <i>before</i> DMM Impacts			
Accounts	18,815	19,281	20,238	7%	20,438	21,633	22,516	24,536
Units (AFY)	14,335	12,217	11,236	-22%	14,201	14,970	14,970	15,949
Future Planned Demand Management Measure Impact								
Units (AFY)	Included				1,083	1,651	1,810	2,247
Net Water Sales: Projected Water Sales <i>after</i> Subtracting Planned DMM Impacts								
Units (AFY)					13,118	12,986	13,160	13,702

Source: City of Palo Alto 2010 UWMP, Table 10.

UTILITIES AND SERVICE SYSTEMS

In addition, in response to the drought and the SWRCB's emergency regulations, the Palo Alto City Council on May 11, 2015 approved a Resolution amending Appendix H, "Water Shortage Contingency Plan Use Restrictions," of the 2010 UWMP, in compliance with the SWRCB's March 17, 2015 emergency drought regulations.

In implementing Executive Order B-29-15, the conservation target for each city, town, or water supplier depends on the residential gallons per capita per day (R-GPCD) used by that city, town, or water supplier. The conservation target is to be met over the entire compliance period of June 2015 through February 2016, unless otherwise extended or modified. According to the SWRCB, the City of Palo Alto used 116.8 R-GPCD during the period from July through September 2014, which corresponds to the SWRCB's "Tier 6" conservation target of 24 percent reduction. Thus, the City of Palo Alto is required to reduce potable water use by 24 percent over the compliance period compared to 2013.³⁵

4.14.1.2 STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains standards of significance for the evaluation of a project's impacts. Section 15064.7 of the CEQA Guidelines encourages each public agency to develop and publish its own thresholds of significance that the agency uses in evaluating the significance of environmental effects for projects in its jurisdiction. The City of Palo Alto prepared its *Environmental Criteria Used by the City of Palo Alto* in 2007. In determining which standards of significance to use for evaluating the water supply and conservation impacts of the proposed Plan, Appendix G of the CEQA Guidelines and the City's published environmental criteria were considered. The analysis in Section 4.14.1.4 uses the City's standards of significance for water supply utilities and services. The proposed Plan would result in a significant water supply impact if it would:

- Need new or expanded entitlements for water supplies.
- Result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.
- Result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

4.14.1.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative water supply impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto. The significance level of all potential impacts described below would be the same for all

³⁵ SWRCB Resolution No. 2015-0032, to adopt an emergency regulation for statewide urban water conservation, http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/rs2015_0032_with_adopted_regs.pdf, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

scenarios. As such, the scenarios are not distinguished below with respect to determination of significance of impacts.

UTIL-1 Sufficient water supplies would be available to serve the proposed Plan from existing entitlements and resources and new or expanded entitlements would not be required. (Less than Significant– All Four Scenarios)

Summary: Buildout of all four scenarios would lead to increases in population and employment in the city and SOI, as shown in Table 3-5. Increased population and employment would differ under each scenario resulting in slightly different increased water demand under each scenario. However, the increased water demand would be very similar under each scenario, as shown in Table 4.14-2 below. In general, water supply impacts would be the same under each scenario. As discussed below and as shown in Table 4.14-3, sufficient water supplies from existing entitlements would be available to serve each scenario and resources and new or expanded entitlements would not be needed. Therefore, all four scenarios would result in a less-than-significant impact.

Table 4.14-2 below shows that buildout of the Plan under each of the four scenarios would result in water demand increase ranging from 783 AFY (Scenario 2) to 785 AFY (Scenario 4). This table was derived³⁶ with input from the Palo Alto Utility regarding water demand and is as illustrated by the Water and Wastewater sheet in Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, of this EIR.

The 2010 UWMP illustrates that during normal precipitation years, the SFPUC has adequate supplies to meet its contractual obligation to the wholesale customers. In adopting the WSIP, the SFPUC approved a water supply plan that provides for an Interim Supply Limitation (ISL) with an automatic sunset in 2018. For the period up to the sunset of the ISL in 2018, Palo Alto's Interim Supply Allocation (ISA) is 14.70 MGD (or 16,477 AFY). The SFPUC has provided a supply commitment of 184 MGD for the wholesale agencies through 2030. After 2018, the City has an Individual Supply Guarantee (ISG) of 17.07 MGD (or 19,118 AFY) and projects demands will remain below the City's ISG through the 2010 UWMP planning horizon of 2030.

³⁶ Existing water demand by land use type in the City was provided by the Palo Alto Utility. In order to account for fluctuations in annual water use due to meteorological conditions (e.g., some years are drier, some years are warmer), annual water demand was averaged over the last four years (2011 through 2014) in order to obtain average annual water use for the City and adjusted to account for additional residential and non-residential water use in the SOI. The increase in water demand for the City and SOI associated with the proposed Plan scenarios is estimated based on the Palo Alto Utility's 2010 Urban Water Management Plan SBX7-7 baseline and 2020 water conservation goals, which are measured in gallons per capita per day. Water demand in the UWMP is calculated based on City population only, meaning that the rates account for water use for all residential plus non-residential land uses in the City but are divided solely based on the number of residents. Because the proposed Plan scenarios account for changes in both residential and non-residential growth, per capita water estimates are adjusted for employment generating land uses in order to obtain a water demand rate that is based on service population (SP: population + employees) rather than per capita (population only). Using this methodology, the increase in population and employees in the city and SOI for each of the scenarios was multiplied by a rate of 73.1 gallons per service population per day and added to the existing annual average water demand.

UTILITIES AND SERVICE SYSTEMS

TABLE 4.14-2 WATER DEMAND FOR PROPOSED PLAN – FOUR SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)
Residential (GPD)	2,235,501,073	2,242,013,287	2,242,013,287	2,242,147,398	2,242,295,031
Non-Residential (GPD)	1,995,134,133	2,243,929,290	2,243,517,820	2,243,730,133	2,243,929,290
Total (GPD)	4,230,635,205	4,485,942,577	4,485,531,107	4,485,877,531	4,486,224,321
Total (AFY)	12,983	13,767	13,766	13,767	13,768
Change from 2014 (AFY)		+784	+783	+784	+785

Note: GPD=gallons per day; AFY=acre-fee per year

Source: PlaceWorks, 2015 ; and Eric Keniston, City of Palo Alto, April 2014 and April 2015.. See Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Water/Wastewater sheet.

Table 4.14-3 below represents the City’s Supply and Demand balance for the 2010 UWMP planning horizon (2030) based on the City’s contractual entitlement with the SFPUC.

TABLE 4.14-3 CITY OF PALO ALTO WATER SUPPLY/DEMAND BALANCE (AFY) (CITY ONLY)

	2015	2020	2025	2030
Projected SFPUC Demand (AFY)	14,253	14,157	14,353	14,971
Interim Supply Allocation (AFY)	16,477	NA	NA	NA
Individual Supply Guarantee (AFY)	NA	19,118	19,118	19,118
Difference (AFY)	2,224	4,962	4,766	4,148

Notes: The Individual Supply Guarantee (ISG) for Palo Alto (19,118 AFY) is reduced to the Interim Supply Allocation (ISA) (16,477 AFY) through 2018, while SFPUC’s WSIP is in progress.

NA = Not applicable

Source: Adapted from City of Palo Alto, 2010 UWMP, Table 41.

Normal Hydrologic Years

Table 4.14-3 shows excess supply will range from 2,234 AFY to 4,962 AFY for the period 2015 through 2030. Table 4.14-2 shows the additional demand from the Plan under all four scenarios ranges from 783 AFY to 785 AFY through the same time period. Water demand for the proposed Plan is less than six percent of the total demand for the City from 2015 through 2030. The water supply allocation/guarantee exceeds demand by 2,224 AFY in 2015 and 4,148 AFY in 2030, corresponding to a surplus ranging from more than 15 percent to more than 27 percent. Thus, the tables show that supply exceeds demand during normal hydrologic years under all four scenarios through 2030. Therefore, impacts under normal years would be *less than significant*.

UTILITIES AND SERVICE SYSTEMS

Single and Multiple Dry Years

The impact on the City from future system-wide SFPUC shortages during single and multiple-dry years will depend on how the shortage is applied to the City. For water shortages up to 20 percent, the Tier 1 water shortage plan in the WSA between the SFPUC and wholesale customers will be applied. The formula included in the Tier 1 plan indicates that the cutback for the City will be similar to the system-wide cutback, but less than the average BAWSCA cutback. For system-wide shortages greater than 20 percent, the SFPUC will follow the Tier 1 plan up to the 20 percent reduction, and meet and discuss incremental reductions above the Tier 1 plan with the wholesale customers. The SFPUC has the authority to make the final allocation decision for the portion above 20 percent, though the wholesale customers have the contractual right to challenge the proposed approach (pursuant to WSA Section 3.11(c)(3)).

During a severe drought the City could utilize groundwater to supplement SFPUC supplies, but the City anticipates that even in dire circumstances only a small amount of groundwater would be served (e.g., less than 10 percent of overall demand). In response to a severe drought the City would work with residents and businesses to significantly reduce water use, and groundwater from City wells would be considered a supplemental resource. Additional information on the various stages of the City's drought response is included in the *Water Shortage Contingency Plan*, and is outlined in Section 4.14.1.1, Local Regulations.

As discussed above and in the 2010 UWMP,³⁷ SFPUC's water system improvement projects, as described in the WSIP, are designed to help meet water demands during multiple dry years. As of March 31, 2015, the 44 regional WSIP projects, with a total cost of \$3.5 billion, that will benefit the wholesale customers of SFPUC, are 87.5 percent complete.³⁸ The current forecast to complete the overall WSIP is May 2019.

California is currently experiencing its fourth year of drought, which may continue into a fifth year and beyond. The SFPUC has requested a voluntary 10 percent water consumption reduction in response to the drought and their determination of available supplies in the regional water system. The SFPUC has not declared a water shortage emergency nor imposed mandatory cutbacks on Palo Alto. The City has responded to SFPUC's voluntary water consumption reduction request and achieved an approximate 16 percent reduction in water use in 2014 relative to 2013. In addition, pursuant to the SWRCB's mandatory water use restrictions, the City of Palo Alto now is required to reduce potable water use by 24 percent over the compliance period compared to 2013 and must report use on a monthly basis to SWRCB, from June 2015 through February 2016. The City believes the SWRCB's mandated 24 percent reduction is achievable if conservation efforts continue.³⁹ The City is responding to the current drought and preparing for potential future droughts in multiple ways. The City began delivering Home Water Reports to Palo Alto residents in November 2013. These reports compare household water consumption with homes of similar

³⁷ The City of Palo Alto is currently updating its UWMP for 2015; the updated 2015 UWMP is anticipated to be available in mid-2016.

³⁸ San Francisco Public Utilities Commission, 2015, WSIP Regional Projects Quarterly Report, 3rd Quarter, fiscal year 2014-2015, <http://www.sfwater.org/modules/showdocument.aspx?documentid=7182>, accessed October 28, 2015.

³⁹ City of Palo Alto Utilities Drought FAQ, <http://www.cityofpaloalto.org/civicax/filebank/documents/43894>, accessed July 27, 2015.

UTILITIES AND SERVICE SYSTEMS

characteristics, including size, age, landscape type, area, and number of occupants. The City of Palo Alto offers many resources to help residents use water wisely, including free water surveys, conservation devices, educational programs and rebates for appliance or landscape upgrades. More information regarding the water situation and water efficiency rebates is available at web links for Residential Water Conservation Rebates,⁴⁰ Water & Drought Updates,⁴¹ and Drought FAQs.⁴² The City also presents drought updates to the Utilities Advisory Commission monthly and has held numerous public meetings to update the community on the drought, responses by the State and the City, and available resources.⁴³

The experience of the past four years of drought, and the response actions taken by the state and the City, demonstrate that sufficient water supplies would be available to serve the proposed Plan from existing entitlements and resources and new or expanded entitlements would not be required during single- and multiple-dry years. Therefore, in accordance with the applicable regulations listed below, as well as the pending UWMP update anticipated to be published in mid-2016, impacts under single- and multiple-dry years would be *less than significant*.

As described in Section 4.14.1.1, Climate Change, climate change will increase extreme weather events. More extreme weather patterns could result in increased droughts and the evaporative loss of potable water. The impacts associated with these effects of climate change are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change.

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC's Water System Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)
- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations

⁴⁰ City of Palo Alto Residential Water Conservation Rebates, <http://www.cityofpaloalto.org/gov/depts/utl/residents/resrebate/resiwater/default.asp> , accessed October 23, 2015.

⁴¹ City of Palo Alto Water & Drought Updates, <http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=2336&TargetID=235,310> , accessed October 23, 2015

⁴² City of Palo Alto Drought FAQs, <http://www.cityofpaloalto.org/civicax/filebank/documents/43894> , accessed October 23, 2015

⁴³ City of Palo Alto Drought Update, public meeting, August 12, 2015, <http://www.cityofpaloalto.org/civicax/filebank/documents/48513> , accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the 2010 *Urban Water Management Plan*

Significance before Mitigation: Sufficient water supplies from existing entitlements would be available to serve development under all four scenarios. New or expanded resources and entitlements would not be needed. Therefore, all four scenarios would result in a less-than-significant impact.

UTIL-2 The proposed Plan would not result in the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effects. (Less than Significant– All Four Scenarios)

Summary: Buildout of all four scenarios would lead to increases in population and employment in the city and SOI, as discussed for Impact UTIL-1. In general, water facility impacts would be the same under each scenario. As discussed below, existing water facilities would be able to serve each scenario and new or expanded facilities would not be needed. Therefore, all four scenarios would result in a less-than-significant impact.

The City receives 100 percent of its potable water from the SFPUC. The City does not own or operate a water treatment plant (WTP). The water purchased from the SFPUC may be treated at one or more WTPs operated by SFPUC. SFPUC treats water to meet all applicable drinking water standards. SFPUC periodically makes improvements to its WTPs in order to improve system reliability and accommodate projected growth in its regional service areas. For example, the WSIP includes capacity expansion and other improvements to the Tesla Treatment Facility (completed in 2013), Sunol Valley WTP (completed in 2014) and Harry Tracy WTP (97 percent complete).⁴⁴ The WSIP also includes many projects to improve the Regional Water System distribution lines and storage reservoirs. As a result, the proposed Plan would not prompt a need to expand treatment facilities or regional water system conveyance and storage facilities in order to meet its demand and this impact would be *less than significant*.

It is possible that existing local distribution lines within the City may be undersized for future projects and improvements under all four scenarios of the proposed Plan and could require replacement with larger diameter pipes. Potential environmental impacts could result from construction and operation of these pipeline improvements; however, such impacts would be project-specific. Any new or expanded local water distribution facilities would require permitting and review in accordance with CEQA, which would ensure environmental impacts are disclosed and mitigated to the extent possible. Therefore, in accordance with the applicable regulations listed below, impacts related to adequate water facilities and service would be *less than significant*.

⁴⁴ SFPUC, WSIP, Regional Projects Quarterly Report, 3rd Quarter, FY 1014/2015, <http://sfsewers.org/Modules/ShowDocument.aspx?documentID=7612>, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC’s Water Supply Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)
- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the *2010 Urban Water Management Plan*.

Significance before Mitigation: Existing water facilities would be able to serve development under all four scenarios. Further, any new or expanded facilities would be subject to existing regulations and procedures. Therefore, all four scenarios would result in a less-than-significant impact.

UTIL-3 The proposed Plan would not result in the substantial physical deterioration of a water utility facility due to increased use as a result of the Plan. (Less than Significant– All Four Scenarios)

Summary: Buildout of all four scenarios would lead to increases in population and employment in the City and SOI, as discussed for Impact UTIL-1 and UTIL-2 above. In general, water facility impacts would be the same under each scenario. As discussed above and below, existing water facilities would be able to serve each scenario without substantial deterioration or the need for new or expanded facilities. Therefore, all four scenarios would result in a less-than-significant impact.

The discussions in UTIL-1 and UTIL-2 show that the proposed Plan’s estimated increase in water demand (785 AFY) at buildout (2030) represents less than five percent (5 percent) of the lowest supply (16,477 AFY) available from the supply agreements with SFPUC through the buildout period. The SFPUC owns, operates, and maintains the water conveyance, storage, and treatment system that supplies water to the City and its other wholesale customers. This “wholesale” water system has been extensively upgraded through the ongoing WSIP. The City of Palo Alto Utilities Water Engineering Section is responsible for planning, designing, budgeting and construction of major capital improvements to the city’s “retail” water distribution system. This program replaces approximately 15,000 linear feet of water mains each year. Water

UTILITIES AND SERVICE SYSTEMS

Engineering is also implementing an Emergency Water Supply and Storage Project to increase the City's water system storage and supply reliability during catastrophic emergencies.⁴⁵ Also, the nature and character of water use and delivery would be similar with and without the Plan. Therefore, in accordance with the applicable regulations listed above, the proposed Plan would not result a substantial physical deterioration of a water utility facility due to increased use as a result of the Plan, resulting in a *less-than-significant* impact.

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (CCR Title 23, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC's Water Supply Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.08 (California Plumbing Code); Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)
- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the *2010 Urban Water Management Plan*
- City of Palo Alto Utilities Capital Improvement Program

Significance before Mitigation: Existing water facilities would be able to serve development under all four scenarios without substantial deterioration or the need for new or expanded facilities. Therefore, all four scenarios would result in a less-than-significant impact.

4.14.1.4 CUMULATIVE IMPACTS

UTIL-4	The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to water supply. (Less than Significant– All Four Scenarios)
--------	--

Summary: Buildout of all four scenarios would lead to cumulative water supply impacts that would be essentially the same under each scenario. As discussed below, in combination with past, present and reasonably foreseeable projects, existing water supply would be able to serve each scenario, and new or

⁴⁵ City of Palo Alto Utilities Water Engineering and Operations, <http://www.cityofpaloalto.org/gov/depts/utl/eng/water/>, accessed October 16, 2015.

UTILITIES AND SERVICE SYSTEMS

expanded supply would not be needed. Therefore, all four scenarios would result in a less-than-significant cumulative impact.

This section analyzes potential cumulative impacts to water supply that could occur from the proposed Plan in combination with past, present, and other reasonably foreseeable projects in the surrounding area. The geographic scope of this cumulative analysis is the SFPUC retail and wholesale service area. The City's 2010 UWMP indicates that the City has sufficient water supply to meet demand in normal years. The last four years of drought have demonstrated that existing water supplies from SFPUC also were sufficient to serve the City during the current multiple-year drought period. The 2010 UWMP, the *Water Shortage Allocation Plan* of the WSA, the WSIP, the City's *Water Shortage Contingency Plan*, and mandatory state emergency water use restrictions also indicate that there are plans and programs in place to ensure sufficient water during future single- and multiple-dry years. Similarly, the cumulative water supply needs of the proposed Plan in combination with past, present, and reasonably foreseeable projects in the SFPUC wholesale service territory during normal, single-, and multiple-dry years could be met by 1) State voluntary and mandatory water conservation and water efficiency measures, 2) SFPUC voluntary and mandatory water conservation and water efficiency measures, 3) City water conservation measures called for in the municipal code and emergency conservation ordinance, 4) BAWSCA's long-term water supply strategy, and 5) SFPUC's WSIP improvements. Cumulative projects would contribute to additional water demands. However, future projects would be subject to the same water conservation efforts, water efficiency measures, and water supply improvements to balance supply and demand as would the proposed Plan. In particular, cumulative projects within the SFPUC wholesale service area would be subject to State and SFPUC voluntary and mandatory conservation measures to reduce usage, the BAWSCA's long-term water supply strategy to enhance supplies, and the SFPUC's WSIP projects to improve the regional water system reliability and capacity.

There would be adequate water supplies to serve the proposed Plan in combination with other reasonably foreseeable projects in the SFPUC wholesale service area. Therefore, in accordance with the applicable regulations listed below, cumulative impacts would be *less than significant*.

Applicable Regulations:

- California Water Conservation Act of 2009 (SB X7-7)
- California Plumbing Code that requires water conserving fixtures
- California Emergency Regulations Restricting Use of Potable Water (Title 23 CCR, Sections 863, 864, 865, and 866)
- *2009 Water Shortage Allocation Plan* between the SFPUC and its wholesale customers, adopted as part of the Water Supply Agreement
- SFPUC's Water Supply Improvement Program
- City of Palo Alto Municipal Code: Chapter 12.32.010, Water Use Regulation; Chapter 12.32.040, Indoor and Outdoor Water Efficiency; Chapter 16.12 (Recycled Water); Chapter 16.14 (Green Building)

UTILITIES AND SERVICE SYSTEMS

- City of Palo Alto City Council Resolution 9509 (May 2015) Regarding Emergency Water Conservation Regulations
- City of Palo Alto water supply and demand management strategies and water shortage contingency plans identified in the 2010 *Urban Water Management Plan*

Significance before Mitigation: Existing water supply would be able to serve cumulative development under all four scenarios, and new or expanded supply would not be needed. Further, any new or expanded facilities would be subject to existing regulations and procedures and cumulative development would be subject to water conservation and efficiency efforts. Therefore, all four scenarios would result in a less-than-significant cumulative impact.

4.14.2 WASTEWATER COLLECTION AND TREATMENT

This section describes the regulatory framework, existing conditions, and impacts related to wastewater collection and treatment. Wastewater collection services in the city and SOI are provided by the CPAU and wastewater treatment services are provided by the City of Palo Alto Public Works Department.

4.14.2.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

The federal government regulates wastewater treatment and planning through the Federal Water Pollution Control Act of 1972, more commonly known as the Clean Water Act (CWA), as well as through the National Pollutant Discharge Elimination System (NPDES) permit program, both of which are discussed in further detail below.

Clean Water Act

The CWA regulates the discharge of pollutants into watersheds throughout the nation. The CWA consists of two parts, one being the provisions that authorize federal financial assistance for municipal sewage treatment plant construction. The other is the regulatory requirements that apply to industrial and municipal dischargers. Under the CWA, the United States Environmental Protection Agency (EPA) implements pollution control programs and sets wastewater standards.

National Pollutant Discharge Elimination System

The NPDES permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges, urban runoff, and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on

UTILITIES AND SERVICE SYSTEMS

allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

The City of Palo Alto manages the Regional Water Quality Control Plant (RWQCP), a regional wastewater treatment plant, for the cities of Los Altos, Los Altos Hills, Palo Alto, and Mountain View; the East Palo Alto Sanitary District; and Stanford University. The agreement requires all six agencies to proportionately share in the costs of building and maintaining the facilities.

Operation of the Palo Alto RWQCP and its wastewater collection system is regulated by Waste Discharge Requirements (WDRs; NPDES No. CA0037834), found in RWQCB Order No. R2-2014-0024,⁴⁶ effective August 1, 2014, and expiring July 31, 2018. The effluent from the RWQCP also is subject to two other NPDES permits: 1) the WDRs for mercury and polychlorinated biphenyls (PCBs) from municipal and industrial wastewater discharges to San Francisco Bay (NPDES No. CA0038849); and 2) waste discharge requirements for nutrients from municipal wastewater discharges to San Francisco Bay (NPDES No. CA0038873). The three NPDES permits enable Palo Alto to discharge treated wastewater into San Francisco Bay and Matadero Creek.

State Laws and Regulations

State Water Resources Control Board

On May 2, 2006 the SWRCB adopted a General Waste Discharge Requirement (Order No. 2006-0003) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipe. The order, as amended by Order No. 2013-0058-EXEC, dated July 30, 2013, provides a consistent statewide approach to reducing sanitary sewer overflows (SSOs) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a *Sewer System Management Plan* (SSMP). The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the SWRCB using an online reporting system.

The SWRCB has delegated authority to nine RWQCBs to enforce these requirements within their region. The City of Palo Alto is within the jurisdiction of the San Francisco Bay RWQCB.

⁴⁶ San Francisco Regional Water Quality Control Board waste discharge permit for City of Palo Alto's RWQCP and wastewater collection system, http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2014/R2-2014-0024.pdf, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

Sanitary District Act of 1923

The Sanitary District Act of 1923 (Health and Safety Code Section 6400 et seq.) authorizes the formation of sanitation districts and empowers them to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater.⁴⁷ The Act was amended in 1949 to allow the districts to also provide solid waste management and disposal services, including refuse transfer and resource recovery.

The CPAU provides wastewater collection and treatment services for the City and its SOI. However, as summarized below, portions of the city and SOI are served by neighboring sanitary districts established pursuant to the Sanitary District Act of 1923. The West Bay Sanitary District (WBSD) provides sanitary sewer services and solid waste collection services to the City of Menlo Park; portions of the Cities of East Palo Alto and Redwood; the Towns of Atherton, Woodside, and Portola Valley; portions of unincorporated south San Mateo County; and several parcels in Santa Clara County near Los Trancos Creek. The WBSD's boundary within Santa Clara County is located within and adjacent to the northwest boundary of Palo Alto's SOI, along the San Mateo County line, and encompasses approximately 0.1 square miles.

Regional and Local Regulations

San Francisco Bay Regional Water Quality Control Board

Regional authority in California for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. Palo Alto is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation of the *Water Quality Control Plan for San Francisco Bay Basin* (Basin Plan). The Basin Plan was updated most recently in June 2013. This Basin Plan designates beneficial uses of the State waters within Region 2, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan.⁴⁸

In addition to the three NPDES permits listed above governing discharges from the RWQCB to San Francisco Bay, the RWQCB issued Water Reclamation Requirements in Order 93-160⁴⁹ governing the production and use of reclaimed (recycled) water from the plant, primarily for irrigation.

⁴⁷ California Health and Safety Code, <http://leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc>, accessed February 4, 2015.

⁴⁸ San Francisco Bay Regional Water Quality Control Board, 2013, *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*.

⁴⁹ San Francisco RWQCB, 1993. Water Reclamation Requirements order 93-160, http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/1993/R2-1993-0160.pdf, accessed December 10, 2015.

UTILITIES AND SERVICE SYSTEMS

City of Palo Alto Sewer System Management Plan

The CPAU SSMP⁵⁰ documents the proper operation and maintenance of CPAU's sanitary sewer system, including capacity management and system audits. The City of Palo Alto is one of several sewer systems that feed the RWQCP where the wastewater is treated before discharge to the San Francisco Bay. The SWRCB has issued statewide waste discharge requirements for sanitary sewer systems, which include requirements for development of an SSMP. The SWRCB requirements are outlined in Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements (GWDR) for Sanitary Sewer Systems, dated May 2, 2006 (SSO WDR), and amended by Order No. 2013-0058-EXEC, dated July 30, 2013. NPDES Permit, No. CA0037834 incorporates the requirements to comply with the SSO WDR by reference in the treatment plant permit to operate, Order No. R2-2014-0024.

The GWDR prohibits sewer system overflows (SSOs), requires reporting of SSOs using the Statewide electronic reporting system, and requires the preparation of an SSMP. The SSMP is required to be audited every two years, per the SWRCB Order No. 2006-0003-DWQ. The SSMP and SSMP audit document the resources required to be invested in capital improvement program (CIP) projects and studies.

The SSMP is also required by the San Francisco Bay RWQCB. The RWQCB outlines the SSMP requirements in the *Sewer System Management Plan Development Guide* dated July 2005 in cooperation with the Bay Area Clean Water Agencies (BACWA).

Regional Monitoring Program

The Regional Monitoring Program (RMP) is run and operated by San Francisco Estuary Institute. The RMP monitors contamination in the Estuary and provides water quality regulators with information they need to manage the Estuary effectively. The RMP is an innovative collaborative effort between San Francisco Estuary Institute, the RWQCB, and the regulated discharger community, which includes the City of Palo Alto.⁵¹

The RMP has combined shared financial support, direction, and participation by regulatory agencies and the regulated community in a model of collective responsibility. The RMP has established a climate of cooperation and a commitment to participation among a wide range of regulators, dischargers, industry representatives, non-governmental agencies, and scientists.

The RMP has produced a world-class dataset on estuarine contaminants. Monitoring performed in the RMP determines spatial patterns and long-term trends in contamination through sampling of water, sediment, bivalves, bird eggs, and fish, and evaluates toxic effects on sensitive organisms and chemical loading to the Bay.

⁵⁰ CPAU, Sewer System Management Plan, 2009, <http://www.cityofpaloalto.org/civicax/filebank/documents/16504>, accessed October 23, 2015.

⁵¹ San Francisco Estuary Institute, www.sfei.org/rmp, accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

Bay Area Clean Water Agencies

The Bay Area Clean Water Agencies (BACWA) is a local government agency created by a joint powers agreement in 1984. BACWA's membership includes local clean water agencies that provide sanitary sewer services to more than seven million people living in the nine county San Francisco Bay Area. BACWA was founded, and continues, to assist agencies in carrying out mutually beneficial projects, and to facilitate the development of scientific, economic, and other information about the San Francisco Bay environment and the agencies that work to protect it and public health.

BACWA is governed by a five-person Executive Board comprised of one representative from each of the joint powers agreement signatory agencies: Central Contra Costa Sanitary District, East Bay Dischargers Authority, East Bay Municipal Utility District, the City and County of San Francisco, and the City of San Jose. The City of Palo Alto is an associated member of BACWA and participates on many of the committees and workgroups. The committees and groups facilitate communication about key issues affecting the municipal wastewater community, keep agency staff apprised of regulatory and policy developments, and provides a venue for establishing regional collaboration.⁵²

BACWA is committed to serving its member agencies and helping them protect the San Francisco Bay environment. Through BACWA committees and the use of technical experts, BACWA provides its members with region-specific information about regulatory and utility management concerns and facilitates the pooling and leveraging of member resources, talent, and expertise. As the regional "voice" for Bay Area clean water agencies, BACWA strives to ensure that the region's needs and concerns are clearly communicated at regional, State, and national forums. BACWA pursues collaborative partnerships and projects that help members fulfill regulatory requirements and conserve resources while also benefiting the San Francisco Bay and its residents.

City of Palo Alto Municipal Code

The City of Palo Alto Municipal Code contains all ordinances for the City. The Municipal Code is organized by Title, Chapter, and Section. At the time of this writing, the Municipal Code is up to date through Ordinance No. 5345, effective October 1, 2015.

Chapter 16.09, Sewer Use Ordinance

The overall goal of this chapter of the Municipal Code and of the City's water quality control program is to prevent and control pollution and protect and foster human health and the environment. The specific purpose of this chapter of the Code is to prevent the discharge of any pollutant into the sanitary sewer system, the storm drain system, or surface waters that would: 1) obstruct or damage the sanitary sewer or storm drain system; 2) interfere with, inhibit or disrupt the Palo Alto RWQCP, or its treatment processes,

⁵² Bay Area Clean Water Agencies (BACWA) website www.bacwa.org accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

or operations, or its sludge processes, use or disposal; 3) pass through the treatment system and contribute to violations of the regulatory requirements placed upon the RWQCP; or 4) result in or threaten harm to or deterioration of human health or the environment. The Sewer Use Ordinance is required in the Palo Alto RWQCP's NPDES permit to protect the health of the San Francisco Bay.

Chapter 16.10, Private Sewage Disposal Systems

The objective of this chapter of the Municipal Code is the provision of public sanitary sewerage facilities for every residence, place of business, or other building where persons reside, congregate, or are employed except where provision of such public sewerage facilities is not feasible. To this end, the City shall have the right to prohibit the installation of private sewage disposal systems in subdivisions except where, in the opinion of the City, installation of public sanitary sewerage facilities is clearly not feasible. The City shall also have the right to require a sub-divider to deposit with the City a cash sum equal to the estimated total cost of construction of a sanitary sewer system to serve a proposed subdivision which is to be served initially by individual sewage disposal facilities, or require sub-divider to construct an approved sanitary sewer system in addition to provision of individual sewage disposal facilities.

Existing Conditions

The CPAU oversees a wastewater collection system consisting of over 217 miles of sewer lines.⁵³ Wastewater effluent is routed to the Palo Alto RWQCP, managed by the City's Public Works Department, where it is treated prior to discharge into the San Francisco Bay.

The wastewater collection system and RWQCP service area includes the City of Palo Alto and its SOI. Stanford owns and operates its own sewer collection system. Stanford's wastewater is collected in its sanitary sewer system and conveyed to and through Palo Alto sewer lines to Palo Alto's treatment plant at the north side of the city. Stanford is a partner in the RWQCP. The Stanford sanitary sewer system is managed by the university's Civil Infrastructure Group within Utilities Services in the Sustainability and Energy Management Department.

While the CPAU is responsible for the wastewater collection system and conveyance of collected sewage to the RWQCP, the Palo Alto Public Works Department is responsible for treatment of sewage at the RWQCP. Approximately 220,000 people live in the RWQCP service area. Of the wastewater flow to the RWQCP, approximately 60 percent is estimated to come from residences, 10 percent from industries, and 30 percent from commercial businesses and institutions. From June 2010 through May 2013, the RWQCP's annual average dry weather flow rate from all its partner cities was 21 MGD.⁵⁴ The flow rate would be lower during

⁵³ City of Palo Alto Utilities GIS Database

⁵⁴ San Francisco Regional Water Quality Control Board waste discharge permit for City of Palo Alto's RWQCP and wastewater collection system, http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2014/R2-2014-0024.pdf, accessed December 10, 2015.

UTILITIES AND SERVICE SYSTEMS

the current year due to drought conditions. The wastewater collection system includes 18,038 customer hook-ups in Palo Alto.

The RWQCP is an EPA award winning Class V advanced secondary treatment facility featuring primary treatment (e.g., bar screening and primary sedimentation), secondary treatment (e.g., fixed film reactors, conventional activated sludge, clarification, and filtration), and filtration and disinfection treatment (e.g., filtration through a sand and coal filter and ultraviolet (UV) disinfection). Through these treatments, 99 percent of ammonia, organic pollutants, and solid pollutants are removed. While the plant was not designed to remove metals, the treatment process through optimization, in combination with pretreatment measures and requirements to install mercury separators at dentists and silver discharge requirements for businesses,⁵⁵ has reduced the quantity of mercury, silver, and lead by 90 percent. The removal rates for other heavy metals range from 20 to 85 percent. The plant's discharge meets very high standards that are among the most stringent discharge standards in the nation. The quality of the water leaving the plant approaches the standards for drinking water. In fact, the heavy metal content in the plant's discharge is low enough that the water would be appropriate for reuse with only one additional disinfection step. Treated effluent is discharged to the San Francisco Bay. The RWQCP is designed to have an average dry weather flow (ADWF) capacity of 39 MGD and an average wet weather flow capacity of 80 MGD. Average daily flow is 20 MGD. According to the City, the RWQCP does not experience any major treatment system constraints and capacity is sufficient for current dry and wet weather loads and for future load projections. There are no plans for expansion or to "build out" the plant; however, the plant is aging and in 2012, in order to make informed decisions in terms of financing and operations, the Palo Alto City Council approved the RWQCP *Long Range Facilities Plan* (LRFP). The LRFP will ensure capital reinvestment, wastewater treatment services for six agencies, and ongoing water quality control to protect the San Francisco Bay and local creeks.

An assessment of the physical condition and remaining useful life of the existing mechanical equipment was performed as part of the LRFP. The results of the assessment were used to estimate the cost to modify or rehabilitate existing facilities. The structural components of the facilities were assessed in 2006 and the results of that assessment were also considered as part of this LRFP in order to determine future process and equipment needs and to develop data for comparing existing facilities/equipment with alternative technologies.

The general findings of the condition assessment are that while the facilities have been well maintained, much of the RWQCP unit processes and equipment are nearing the end of their useful life and will be considered for replacement or major rehabilitation. Repairing or replacing the aging facilities will require a significant investment in the next 15 years.

The most significant finding affecting the RWQCP is that the existing incinerators, which are 40 years old, are at or near the end of their useful life. Units are difficult to maintain as they age; the steel structure

⁵⁵ City of Palo Alto RWQCP, 2015. Clean Bay Pollution Prevention Plan, <http://www.cityofpaloalto.org/civicax/filebank/documents/46444>, accessed December 10, 2015.

UTILITIES AND SERVICE SYSTEMS

holding the refractory bricks together is stressed and rusting from within. Existing repair efforts have focused on patching and re-welding problem areas that have stressed due to decades of thermal stress. In addition, a seismic analysis of the incinerators and the incinerator building indicate that an earthquake could render the incinerator process nonfunctional. A backup raw sludge hauling contract needs to be in place. The City is currently working on a dewatering /truck load out facility for sludge.

Cities along the San Francisco Bay, such as Palo Alto, are particularly vulnerable to rising sea levels. Along the San Francisco Bay, sea levels are expected to rise up to 69 inches due to climate change.⁵⁶ Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. As described in the City of Palo Alto Annex to the *Santa Clara County Local Hazard Mitigation Plan*, critical facilities at risk to sea level rise include the RWQCP. These facilities are located along or near the shoreline and are of particular concern because they provide essential public services, and their compromise during a hazardous event could further aggravate the situation.

4.14.2.2 STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains standards of significance for the evaluation of a project's impacts. Section 15064.7 of the CEQA Guidelines encourages each public agency to develop and publish its own thresholds of significance that the agency uses in evaluating the significance of environmental effects for projects in its jurisdiction. The City of Palo Alto prepared its *Environmental Criteria Used by the City of Palo Alto* in 2007. In determining which standards of significance to use for evaluating the wastewater impacts of the proposed Plan, Appendix G of the CEQA Guidelines and the City's published environmental criteria were considered. The analysis in Section 4.14.2.4 uses the City's standards of significance for wastewater utilities and services. The proposed Plan would result in a significant impact to wastewater collection and treatment facilities if it would:

- Exceed wastewater treatment requirements of the Regional Water Quality Control Board.
- Result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.
- Result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

⁵⁶ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*. See Chapter 4.8, Hydrology and Water Quality, for a more detailed description of sea level rise planning scenarios.

UTILITIES AND SERVICE SYSTEMS

4.14.2.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative wastewater collection and treatment impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto. The significance level for all potential impacts described below would be the same for all scenarios. As such, the scenarios are not distinguished below with respect to determination of significance of impacts.

UTIL-5 The proposed Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant– All Four Scenarios)

Summary: Development allowed by all four scenarios would lead to varied increases in population and employment in the city and SOI. Those increases, in turn, would result in increased wastewater generation. In spite of the varied population and employment projects, the increased wastewater generation would be relatively similar in quantity under each scenario (as shown in Table 4.14-4). In addition, the nature and quality of the wastewater would be similar under all four scenarios. Therefore, wastewater treatment requirements would be the same under each scenario. As discussed below, the RWQCP is capable of treating wastewater under all four scenarios and wastewater treatment requirements of the San Francisco RWQCB would not be exceeded. Therefore, all four scenarios would result in a less-than-significant impact.

The current WDRs (NPDES No. CA0037834) for the RWQCP and wastewater collection system are found in RWQCB Order No. R2-2014-0024 effective August 1, 2014, and expiring July 31, 2018. The NPDES Order sets out a framework for compliance and enforcement applicable to operation of the RWQCP and its effluent, as well as those contributing influent to the RWQCP. This NPDES Order currently allows dry weather discharges of up to 39 MGD with full tertiary treatment, and wet weather discharges of up to 80 MGD. The RWQCP currently tests for approximately 70 different parameters in ten different main process sample streams. This monitoring allows for a very good assessment of the performance of RWQCP processes. The LRF for the RWQCP adopted in 2012 found that the existing facilities were operating within normal ranges. The existing secondary and tertiary treatment systems are adequately treating the wastewater to meet the existing discharge requirements. The RWQCP has a good record for meeting its effluent discharge permit limits.⁵⁷

Based on the treatment process's design criteria and historical performance, it is anticipated that the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through

⁵⁷ Palo Alto's Long Range Facilities Plan for the RWQCP, 2012, page 1-8, <http://www.cityofpaloalto.org/civicax/filebank/documents/29614>, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

at least 2035.⁵⁸ In addition, based on existing planning documents, projected dry weather flows are anticipated to be between 28 and 34 MGD in the year 2062, which is below the dry weather flow design capacity of the plant (39 MGD).

Using the conservative assumption that 100 percent of the net increase in indoor water demand for the proposed Plan (under all four scenarios) becomes wastewater, the estimated net increased wastewater generation rate from the proposed Plan at buildout will be range from 629,858 gallons per day (GPD) (under Scenario 2) to 631,589 GPD (under Scenario 4) (see Table 4.14-4). This increase in wastewater generation (i.e., a maximum of approximately 0.632 MGD) would not be significant relative to currently available and projected excess treatment capacity. This analysis is additionally conservative because it assumed that 100 percent of indoor water demand becomes wastewater and because the estimated water demand itself does not account for future conservation measures.

TABLE 4.14-4 WASTEWATER GENERATION FOR PROPOSED PLAN – FOUR SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)
Wastewater Generation (gallons/year)	3,815,750,000	4,046,020,174	4,045,649,055	4,045,961,507	4,046,274,287
Wastewater Generation (GPD)	10,454,110	11,085,003	11,083,986	11,084,842	11,085,699
Change from 2014 (GPD)		630,893	629,858	630,732	631,589

Note: GPD = gallons per day

Source: Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Water and Wastewater sheet. Also, Eric Keniston, City of Palo Alto, April 2014 and April 2015.

The City of Palo Alto, serving as the Discharger, has an approved pretreatment program, which includes approved local limits as required by the NPDES permit. The permit requires the Discharger to evaluate its local limits, such as those established by the other entities contributing to the RWQCP, to ensure compliance with updated effluent limits. The RWQCP is required to monitor the permitted discharges into the collection system in order to evaluate compliance with the RWQCP’s permit conditions.

In accordance with the applicable regulations listed below, wastewater generated from potential future development under the proposed Plan would not exceed the wastewater treatment requirements or capacity of the RWQCP. Therefore, the wastewater treatment requirements of the San Francisco RWQCB would not be exceeded due to buildout of the proposed Plan, resulting in a *less-than-significant impact*.

⁵⁸ Palo Alto’s Long Range Facilities Plan for the RWQCP, May 2012, page 1-8, <http://www.cityofpaloalto.org/civicax/filebank/documents/29614>, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for operation of the RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP.
- City of Palo Alto Municipal Code, Chapter 16.09, Sewer Use Ordinance
- *City of Palo Alto Utilities Sewer System Management Plan*

Significance before Mitigation: Wastewater treatment requirements would be the same under all four scenarios and none of the scenarios would exceed the wastewater treatment requirements of the San Francisco RWQCB. Therefore, all four scenarios would result in a less-than-significant impact.

UTIL-6	The proposed Plan would not result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the Plan’s projected demand in addition to the provider’s existing commitments. (Less than Significant– All Four Scenarios)
---------------	---

Summary: Development allowed by all four scenarios would lead to increases in population and employment in the city and SOI, and corresponding increases in wastewater generation, as discussed for Impact UTIL-5 above. In general, wastewater capacity impacts would be the same under each scenario. As discussed above and summarized below, existing wastewater facilities would have adequate capacity to serve each scenario and the Plan would not result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve projected demand. Therefore, all four scenarios would result in a less-than-significant impact.

Operation of the City’s RWQCP and wastewater collection system is regulated by NPDES No. CA0037834, as prescribed in RWQCB Order No. R2-2014-0024. The RWQCP is designed to have an average dry weather flow capacity of 39 MGD and an average wet weather flow capacity of 80 MGD. Existing average daily flow is about 21 MGD. According to the City, the RWQCP does not experience any major treatment system constraints and capacity is sufficient for current dry and wet weather loads and for future load projections. There are no plans for expansion or “build out” of the plant.

UTILITIES AND SERVICE SYSTEMS

The LRFP anticipated that, based on existing planning documents, the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through at least 2035. The LRFP further projected dry weather flows are anticipated to be between 28 and 34 MGD in the year 2062, which is below the dry weather flow design capacity of the plant (39 MGD).

Table 4.14-4 above (UTIL-5) shows that buildout of the Plan under each of the four scenarios would result in wastewater generation increase ranging from 629,858 gallons per day (GPD) (under Scenario 2) to 631,589 GPD (under Scenario 4). This table was derived with input from the CPAU regarding wastewater demand. Table 4.14-4 shows that the proposed Plan's estimated worst-case increase in wastewater flow (a maximum of approximately 0.632 MGD) represents less than 4 percent of the existing excess dry flow capacity of 18 MGD available at the RWQCP (39 MGD – 21 MGD = 18 MGD). The LRFP further estimates that the RWQCP would have at least 5 MGD of excess capacity in 2062.

Although some aging facilities will need to be replaced, based on the treatment processes design criteria and historical performance, the LRFP anticipates that the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through at least 2035, assuming the same level of treatment is required. Projected dry weather flows are anticipated to be between 28 and 34 MGD in the year 2062; below the dry weather flow design capacity of the plant (39 MGD).

In accordance with the applicable regulations listed below, wastewater generated from potential future development under the proposed Plan would not exceed the capacity of the RWQCP. As such, the proposed Plan would not result in a determination that the RWQCP does not have adequate capacity to serve the Plan's projected demand in addition to the provider's existing commitments, resulting in a *less-than-significant* impact.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP
- City of Palo Alto Municipal Code, Chapter 1609, Sewer Use Ordinance
- City of Palo Alto Utilities Sewer System Management Plan

Significance before Mitigation: Existing wastewater facilities would have adequate capacity to serve each scenario and the proposed Plan would not result in a determination by the wastewater treatment

UTILITIES AND SERVICE SYSTEMS

provider that it does not have adequate capacity to serve projected demand. Therefore, all four scenarios would result in a less-than-significant impact.

UTIL-7 The proposed Plan would not result in adverse physical impacts from new or expanded wastewater utility facilities required to provide service as a result of the Plan. (Less than Significant– All Four Scenarios)

Summary: Development allowed by all four scenarios would lead to increases in population and employment in the city and SOI, and corresponding increases in wastewater generation, as discussed for Impact UTIL-5, UTIL-6, and UTIL-7 above. In general, wastewater capacity impacts would be the same under each scenario. As discussed above and summarized below, existing wastewater facilities would have adequate capacity to serve each scenario and the Plan would not result in a determination by the wastewater treatment provider that it does not have adequate capacity. Thus, none of the scenarios would require new or expanded wastewater utility facilities and all four scenarios would result in a less-than-significant impact.

The discussions in UTIL-5 and UTIL-6 above show that the existing RWQCP facilities would provide adequate capacity to meet dry weather and maximum month flows through at least 2035 and beyond, and that new or expanded facilities would not be needed as a result of any of the four scenarios. Some aging facilities will need to be replaced, based on the treatment processes design criteria and historical performance. However, these facility upgrades and replacements are anticipated based on existing planning documents and would not be necessitated as a result of the proposed Plan. In addition, the LRFPP anticipates that the existing RWQCP facilities will provide adequate capacity to meet dry weather and maximum month flows through at least 2035, assuming the same level of treatment is required. Therefore, the proposed Plan would not result in adverse physical impacts from new or expanded wastewater utility facilities required to provide service as a result of the Plan, resulting in a *less-than-significant* impact.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP
- City of Palo Alto Municipal Code, Chapter 1609, Sewer Use Ordinance
- *City of Palo Alto Utilities Sewer System Management Plan*

UTILITIES AND SERVICE SYSTEMS

Significance before Mitigation: Existing wastewater facilities would have adequate capacity to serve development under all four scenarios. Thus, none of the scenarios would require new or expanded wastewater utility facilities and the impact under all four scenarios would be less than significant.

UTIL-8 The proposed Plan would not result in a substantial physical deterioration of a wastewater utility facility due to increased use as a result of the Plan. (Less than Significant– All Four Scenarios)

Summary: Development allowed by all four scenarios would lead to increases in population and employment in the city and SOI, and corresponding increases in wastewater generation, as discussed for Impact UTIL-5, UTIL-6, and UTIL-7 above. In general, wastewater capacity impacts would be the same under each scenario. As discussed above and summarized below, existing wastewater facilities would have adequate capacity to serve each scenario. The Plan would not result in a substantial increase in volume of wastewater and would not result in a substantially different quality of wastewater. Absent these factors, any increased use of existing wastewater facilities would not result in substantial physical deterioration. Therefore, all four scenarios would result in a less-than-significant impact.

The discussions in UTIL-5, UTIL-6, and UTIL-7 above show the proposed Plan’s estimated worst-case increase in wastewater flow (a maximum of approximately 0.632 MGD) at buildout represents less than four percent of the existing excess dry flow capacity available at the RWQCP of 18 MGD. In addition, the LRFP estimates that RWQCP would have at least five MGD of excess capacity in 2062. All four scenarios would allow residential and non-residential development consistent with existing land use types in the EIR Study Area. Therefore, the nature and character of the wastewater would be similar with and without the Plan. Accordance with the applicable regulations listed below, the proposed Plan would not result a substantial physical deterioration of a wastewater utility facility due to increased use as a result of the Plan, resulting in a *less-than-significant* impact.

As described in Section 4.14.2.2, Existing Conditions, sea levels along the San Francisco Bay are expected to rise up to 69 inches due to climate change.⁵⁹ The RWQCP is a critical facility at risk to sea level rise. Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. The impacts associated with sea level rise are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change.

Applicable Regulations:

- San Francisco RWQCB NPDES Permit (Order No. R2-2014-0024) for RWQCP
- SWRCB Order No. 2006-0003-DWQ for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

⁵⁹ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan.*

UTILITIES AND SERVICE SYSTEMS

- SWRCB Order No. WQ 2013-0058-EXEC revising SWRCB Order No. 2006-0003-DWQ
- San Francisco RWQCB NPDES Permit No. CA0038849 for waste discharge requirements for mercury and PCBs from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB NPDES Permit No. CA0038873 for waste discharge requirements for nutrients from municipal and industrial wastewater discharges to San Francisco Bay
- San Francisco RWQCB Order No. 93-160 for water reclamation requirements for production and use of recycled water from the RWQCP
- City of Palo Alto Municipal Code, Chapter 1609, Sewer Use Ordinance
- *City of Palo Alto Utilities Sewer System Management Plan*

Significance before Mitigation: Wastewater facilities would have adequate capacity to serve development under all four scenarios and the proposed Plan would not result in a substantial increase in the volume of wastewater or a substantially different quality of wastewater. Impacts under all four scenarios would be less than significant.

4.14.2.4 CUMULATIVE IMPACTS

This section analyzes potential impacts related to wastewater treatment that could occur from the proposed Plan in combination with reasonably foreseeable growth within the RWQCP service area.

UTIL-9 The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to wastewater. (Less than Significant– All Four Scenarios)

Summary: As discussed below, all four scenarios would result in a less-than-significant cumulative impact.

Buildout of the proposed Plan under all four scenarios would generate a moderate increase in the volume of wastewater delivered for treatment at the RWQCP. This increase represents less than five percent of the available treatment capacity at the RWQCP and it would occur incrementally until the proposed Plan horizon. The RWQCP serves the Plan Area and currently uses significantly less than its design and permitted wastewater treatment capacity. Based on the cumulative wastewater treatment demand predicted in the LRFP for the service area of the RWQCP, demand generated throughout the proposed Plan buildout period is far below the excess capacity of the RWQCP. Because the cumulative demand would not substantially impact the existing or planned capacity of the wastewater treatment system, which has sufficient capacity for wastewater that would be produced by the proposed Plan, the construction of new wastewater treatment facilities would not be necessary.

Additionally, future development in the RWQCP service area would be subject to the development review process within each project's local jurisdiction and would be required to mitigate any effects to wastewater treatment services on a project-by-project basis. Future development would also be required to comply

UTILITIES AND SERVICE SYSTEMS

with all applicable federal, State, and regional regulations and ordinances protecting wastewater treatment services.

Wastewater from cumulative projects would be treated according to the wastewater treatment requirements documented in the NPDES permit for the RWQCP and enforced by the San Francisco RWQCB.

Therefore, cumulative development combined with the proposed Plan would not exceed wastewater treatment requirements, and cumulative impacts to sanitary wastewater service would be *less than significant*.

Significance before Mitigation: Existing wastewater treatment capacity would be able to serve cumulative development under all four scenarios, and new or expanded supply would not be needed. Further, any new or expanded facilities would be subject to existing regulations and procedures. Therefore, all four scenarios would result in a less-than-significant cumulative impact.

4.14.3 STORMWATER COLLECTION

This section describes the regulatory framework, existing conditions, and impacts related to stormwater collection facilities.

4.14.3.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Clean Water Act

The United States EPA is the lead federal agency responsible for water quality management. The CWA (codified at Title 33 United States Code, Sections 1251 through 1376) of 1972 is the primary federal law that governs and authorizes water quality control activities by the EPA as well as the States. Various elements of the CWA address water quality and they are discussed below. Wetland protection elements, including permits to dredge or fill wetlands, are administered by the United States Army Corps of Engineers (COE) under Section 404 of the CWA.

Under federal law, the EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR). Section 303 of the CWA requires States to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must

UTILITIES AND SERVICE SYSTEMS

protect the most sensitive use. In California, the EPA has designated the SWRCB and its RWQCBs with authority to identify beneficial uses and adopt applicable water quality objectives.

When water quality does not meet CWA standards and compromises designated beneficial uses of a receiving water body, Section 303(d) of the CWA requires that water body be identified and listed as “impaired.” Once a water body has been designated as impaired, a Total Maximum Daily Load (TMDL) must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards, with a factor of safety included. Once established, the TMDL allocates the loads among current and future pollutant sources to the water body.

San Francisquito Creek, Matadero Creek, and South San Francisco Bay are listed as Section 303(d) impaired water bodies.⁶⁰

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States, including discharges from municipal separate storm sewer systems (MS4s). Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and urban (nonpoint-source) stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

Under the NPDES Program, all facilities that discharge pollutants into waters of the United States are required to obtain an NPDES permit. Requirements for stormwater discharges are also regulated under this program. In California, the NPDES permit program is administered by the SWRCB through the nine RWQCBs. The City of Palo Alto lies within the jurisdiction of San Francisco RWQCB (Region 2) and is subject to the requirements of the Municipal Regional Stormwater Permit (MRP, Order No. R2-2015-0049).⁶¹ This new Municipal Regional Permit was adopted by the San Francisco RWQCB on November 19, 2015 and is effective January 1, 2016; it replaces the previous MRP, Order No. R2-2009-0074. The goals of the MRP are to eliminate discharges to the storm drain system that are not rainwater and to prevent the pollution of stormwater from on-land activities.

⁶⁰ State Water Resources Control Board, 2010, *Final Integrated Report (CWA Section 303(d) List/305(b) Report*, http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/category5_report.shtml accessed February 4, 2015.

⁶¹ SF-Regional water Quality control Board, 2015. Municipal Regional Stormwater permit, http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/R2-2015-0049.pdf, accessed December 21, 2015.

UTILITIES AND SERVICE SYSTEMS

Under Provision C.3.b. of the current permit, permittees were required to complete ten “green street” pilot projects that incorporate low impact development (LID) site design and treatment techniques. The Southgate Neighborhood Green Streets Project within the City of Palo Alto was selected as a pilot project. The project addresses drainage problems in the neighborhood through measures including bioretention and biofiltration areas, porous pavement crosswalks, and a porous pavement “paseo” (pedestrian walkway connecting two streets). The bioretention areas are incorporated into the street right-of-way and existing parkway strips.

The NPDES permit also covers stormwater discharges and WDRs for industrial activities under General Permit No. CAS000001 and Order No. 97-03 DWQ.

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act (Water Code sections 13000 *et seq.*) is the basic water quality control law for California. The act established the SWRCB and divided the State into nine regional basins, each under the jurisdiction of a RWQCB. The SWRCB is the primary State agency responsible for the protection of California’s water quality and groundwater supplies. The RWQCBs carry out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a water quality control plan or basin plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region’s ground and surface water, and local water quality conditions and problems.

The Porter-Cologne Act also authorizes the SWRCB and RWQCBs to issue and enforce WDRs, NPDES permits, Section 401 water quality certifications, or other approvals. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) which governs drinking water regulations, the California Department of Pesticide Regulation, the California Department of Fish and Wildlife (CDFW), and the Office of Environmental Health and Hazard Assessment (OEHHA).

State Water Resources Control Board

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA.

Construction activities that disturb one or more acres of land that could impact hydrologic resources must comply with the requirements of the SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ. Under the terms of the permit, applicants must file Permit Registration Documents (PRDs) with the SWRCB prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, *StormWater Pollution Prevention Plan* (SWPPP), annual fee, and a

UTILITIES AND SERVICE SYSTEMS

signed certification statement. The PRDs are now submitted electronically to the SWRCB via the Storm Water Multiple Application and Report Tracking System (SMARTS) website.

For more information on the Construction General Permit, please see Chapter 4.8, Hydrology and Water Quality. Under the MRP, City inspectors inspect sites over one acre and those in high-priority areas.

Regional and Local Regulation

San Francisco Bay Regional Water Quality Control Board

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans.

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation of the Basin Plan. The Basin Plan was updated most recently in June 2013. This Basin Plan designates beneficial uses of the State waters within Region 2, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan.⁶²

San Francisquito Creek Joint Powers Authority (JPA)

The JPA is a governmental organization with a board of directors made up of the elected officials of the Cities of Palo Alto, Menlo Park, and East Palo Alto; San Mateo County; and the Santa Clara Valley Water District. The agency was formed in 1999 with the objective of protecting properties along San Francisquito Creek from 100-year floods, stabilizing creek banks, and enhancing the natural habitat. The JPA and COE are planning for large-scale, comprehensive flood risk reduction. The JPA is responsible for planning, designing, and implementing projects, which include increasing channel capacity through dredging, reducing flood risk by building levees and floodwalls, and reconnecting the creek to 14 acres of Baylands in Palo Alto city limits to serve as creek floodplain. The JPA's projects are typically funded by local, State, and federal partners.

Santa Clara Valley Water District

The SCVWD is a water resources agency responsible for balancing flood protection needs with the protection of natural water courses and habitat in the Santa Clara Valley. SCVWD serves 16 cities and 1.8 million residents, provides wholesale water supply, operates three water treatment plants, and provides flood protection along the creeks and rivers within the county. The *Clean, Safe Creeks and Natural Flood*

⁶² San Francisco Bay RWQCB, 2013, *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*.

UTILITIES AND SERVICE SYSTEMS

Protection Plan (CSC Plan) was approved by Santa Clara County voters in November 2000 to create a countywide special parcel tax to accomplish the following four goals:⁶³

- 100-year flood protection for homes, schools, businesses, and transportation.
- Clean, safe water in Santa Clara County creeks and bays.
- Healthy creek and bay ecosystems.
- Trails, parks, and open space along waterways.

The SCVWD reviews plans for development projects near streams to ensure that the proposed storm drain systems and wastewater disposal systems will not adversely impact water quality in the streams. In addition, the SCVWD reviews projects for conformance to SCVWD flood control design criteria, stream maintenance and protection plans, and groundwater protection programs.

On October 24, 2006, the SCVWD adopted the Water Resources Protection Ordinance (Ordinance 06-1). This ordinance established the policy through which, beginning on February 28, 2007, the SCVWD issues permits for modifications, entry, use, or access to SCVWD facilities or easements. This ordinance was adopted following the creation of the Guidelines and Standards for Land Use near Streams by the Santa Clara Valley Water Resources Protection Collaborative (Collaborative). The Collaborative was formed in 2003 and includes the SCVWD and representatives from the County of Santa Clara, the cities within the County, the Guadalupe-Coyote Resource Conservation District, the San Francisco Bay RWQCB, and representatives of various community interests. The Collaborative members share the water and watershed resources protection goals of flood management, drinking water quality and adequate quantity, surface and groundwater quality and quantity, and habitat protection and enhancement throughout the county.

Santa Clara Valley Urban Runoff Pollution Prevention Program

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) is an association of thirteen cities and towns in Santa Clara Valley, the County of Santa Clara, and the Santa Clara Valley Water District. The SCVURPPP is organized, coordinated, and implemented in accordance with a Memorandum of Agreement (MOA) signed by the co-permittees. The MOA details the responsibilities of each co-permittee and a cost-sharing formula for joint program-wide expenditures. The Program and co-permittees implement pollution prevention, source control, monitoring, and outreach programs aimed at reducing pollutants in stormwater runoff to the “maximum extent practicable,” and protecting water quality and beneficial uses of the San Francisco Bay and Santa Clara Valley creeks and rivers.⁶⁴

The NPDES permit (MRP, effective January 1, 2016) for municipal stormwater discharges in the San Francisco Bay area covers 76 municipal agencies in five Bay area counties. Requirements in the MRP include best management practices for municipal operations, industrial and commercial facility inspection and control programs, illicit discharge detection and elimination, new and redevelopment controls to prevent

⁶³ Santa Clara Valley Water District, www.valleywater.org, accessed April 3, 2014.

⁶⁴ Santa Clara Valley Urban Runoff Pollution Prevention Program, Program Summary 2013.

UTILITIES AND SERVICE SYSTEMS

increases in runoff flows, construction site controls and inspections, public information and outreach, water quality monitoring, and specific requirements for pollutants such as pesticides, mercury, PCBs, copper, and trash.

The MRP also requires development of a *Hydrograph Modification Management Plan* (HMP) to manage increased peak runoff flows and volumes (hydromodification) and avoid erosion of stream channels and degradation of water quality caused by new and redevelopment projects. The permit was issued to cover “surface runoff generated from various land uses in all the hydrologic sub basins in the basin which discharge into watercourses, which in turn flow into South San Francisco Bay.” The City of Palo Alto, pursuant to Provision C.16.a of the MRP, submits an annual report to the SCVURPPP that documents the stormwater activities conducted during the year. Provision C.10 of the MRP requires a reduction (compared to 2009 levels) in trash loads from municipal separate storm sewer systems of 70 percent by July 1, 2017, 80 percent by July 1, 2019 and 100 percent by 2022.

The SCVURPPP is a member of the Bay Area Stormwater Management Agencies Association (BASMAA), a regional consortium of municipal stormwater programs. The seven member programs of BASMAA have all agreed to the terms of a memorandum of understanding (MOU) that sets policy on member's roles and responsibilities, and describes the purpose and basic operations (e.g., voting, dues) of the organization.

Santa Clara Basin Watershed Management Initiative

The Watershed Management Initiative (WMI) was initiated in 1996 by the United States EPA, the SWRCB, and the San Francisco Bay RWQCB to address all sources of pollution that threaten the Bay and to protect water quality throughout Santa Clara Basin watersheds. In the past, specific issues affecting watersheds had been addressed by separate regulatory actions, resulting in a “patchwork” approach. A major aim of the WMI is to coordinate existing regulatory activities on a basin wide scale, ensuring that problems are addressed efficiently and cost-effectively.

The Santa Clara Basin WMI consists of 34 collaborative groups from regional and local public agencies; civic, environmental, resource conservation, and agricultural groups; professional and trade organizations; business and industrial sectors; and the general public. The purpose of the WMI is “to develop and implement a comprehensive watershed management program – one that recognizes that healthy watersheds mean addressing water quality problems and quality of life issues for the people, animals, and plants that live in the watershed.” The WMI has continued to develop its foundation by producing a watershed assessment report (2003), a watershed action plan (2003), plastics pollution prevention summit (2011), impacts of homelessness on creeks (2011), and educational materials to reduce water usage by the general public.⁶⁵

The WMI is currently focused on implementing the Zero Litter Initiative (ZLI) that brings together multiple cities and agencies with a common interest in preventing litter and reducing trash loads into San Francisco

⁶⁵ Santa Clara Basin Watershed Management Initiative, 2013, <http://www.scbwmi.org/>, accessed April 4, 2014.

UTILITIES AND SERVICE SYSTEMS

Bay Area watersheds, creeks, and the Bay. Key players include staff from the Cities of Palo Alto, San Jose, and Campbell; the Santa Clara Valley Water District; CalTrans; the Santa Clara Valley Transportation Authority (VTA); and SCVURPPP. The WMI is in the process of finalizing and beginning implementation of the strategic plan for eliminating trash throughout Santa Clara County. Initiatives in Palo Alto include banning single-use checkout bags in retail and food service establishments, banning restaurant and retail use and distribution of plastic foam products (e.g., Styrofoam™ foodware and packaging), expanding smoking ordinances to reduce cigarette butt litter, adopting City green purchasing policies and procedures to reduce the purchase of products and/or accompanied packaging that may contribute to litter, pursuing alternatives to single use take-out food containers, anti-litter campaigns with education and outreach, improving the removal of trash in local creeks with trash booms, and conducting creek cleanup events.⁶⁶

Santa Clara County General Plan

The *Santa Clara County General Plan* contains the goals, strategies, policies, and implementing actions that guide in the overall land use development of the county. Unincorporated lands within Santa Clara County that are within Palo Alto's SOI are subject to land use jurisdiction and regulatory authority of the County. In addition, the SCVWD and the Santa Clara Basin WMI have jurisdiction for streams and watersheds within the city limits and the SOI.

Stanford Community Plan

The *Stanford Community Plan* along with the General Use Permit are the governing documents that guide land use and development within the unincorporated lands of Stanford University.⁶⁷ The *Stanford Community Plan* refines the policies of *Santa Clara County's General Plan* as they apply to stormwater. At Stanford, stormwater pollution prevention is accomplished by combining training and outreach materials about best management practices that target diverse activities including construction site management. Stanford also performs frequent site visits and meets with project representatives to cultivate a culture of continuous improvement for management practices that may impact stormwater quality. In addition, Stanford installs and maintains bio-swales, porous pavement, and swirl separator devices, which aid in storm water pollution prevention.⁶⁸

City of Palo Alto Municipal Code

Four chapters of the City of Palo Alto Municipal Code contain directives pertaining to stormwater runoff and utilities.

⁶⁶ Palo Alto Regional Water Quality Control Plant, 2015, Clean Bay Pollution Prevention Plan 2015.

⁶⁷ Stanford University, 2000, *Stanford University Community Plan*.

⁶⁸ Stanford University, Sustainability and Energy Management web page, http://lbre.stanford.edu/sem/storm_water, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

Chapter 16.09, Sewer Use Ordinance

The City of Palo Alto sewer use ordinance is designed to reduce the amount of pollutants that enter the sanitary sewer and storm drain system.

Chapter 16.11, Stormwater Pollution Prevention

This chapter provides the stormwater requirements for projects conducted within the City of Palo Alto and is consistent with the requirements of the MRP.

Chapter 16.14, California Green Building Standards Code

This chapter incorporates the Title 24 requirements of the 2013 California Green Building Standards and one section references local stormwater pollution prevention (Chapter 16.14.150) and the other references irrigation efficiency standards (Chapter 16.14.200).

Chapter 16.28, Grading and Erosion

This chapter requires projects to obtain a grading and excavation permit and requires submittal of an interim erosion and sediment control and stormwater pollution prevention plan (Chapter 16.28.120) that describes the surface runoff and erosion control measures that will be implemented during construction of the project. Chapter 16.28.200 contains the provisions for the final erosion and sediment control and stormwater pollution prevention plan that describes permanent control measures to improve the quality of stormwater runoff from the site.

Clean Bay Business Program

In 1992, the RWQCP developed a Vehicle Service Facility Waste Minimization Program. The program approach was to combine increased regulation, education, and positive incentives to encourage pollution prevention. Clean Bay Business vehicle service shops and car washes practice "waste minimization" and keep pollutants out of both the storm drains and the sewers. In order to be recognized as a Clean Bay Business, a vehicle service shop must adopt special practices to prevent water pollution. Clean Bay Businesses receive free publicity in local newspapers in full page ads and recognition items such as decals and brochures to publicize their status.

Innovative Stormwater Measures Rebate Program

The City has implemented various programs to reduce stormwater pollution. The City administers the Innovative Stormwater Measures Rebate Program, which is funded with revenue from monthly storm drainage fees. The goal of the program, which was started in 2008, is to help Palo Alto residents, businesses, and City departments reduce the amount and improve the quality of runoff that flows into the storm drain system by offering rebates to those who install qualifying stormwater reduction measures, such as:

UTILITIES AND SERVICE SYSTEMS

- Capturing rainwater in rain barrels or cisterns for use on landscaping and gardens.
- Constructing or reconstructing driveways, patios, walkways, and parking lots with permeable paving materials.
- Constructing a green (vegetated) roof to absorb and filter rainfall.

Grading and Drainage Policies

The City also has several policies and guidelines for construction projects regarding grading and drainage. These policies and guidelines include the following:

- **Basement Exterior Drainage Policy.** To protect public safety and health by preventing the continual discharge of groundwater into the City's gutters and streets, the Department of Public Works will not permit the use of basement exterior drainage systems consisting of perforated pipes located on the exterior of the basement walls or underneath the slab that collect water, which is then pumped to the surface of the ground for discharge, either on-site or off-site for all City parcels northeast (i.e., bay side) of the Foothill Expressway.
- **Construction Dewatering System Policy.** A Construction Dewatering Plan must be submitted to the Department of Public Works for excavation activities that encounter groundwater or other water that needs to be removed from the excavation and disposed of in the City's storm drain system. The plan must detail a system to remove silt and other pollutants from this water prior to discharging it to the storm drain system. The Department of Public Works reviews and approves the dewatering plans as part of the Street Work Permit.
- **Grading and Drainage Guidelines for Residential Development.** A Grading and Drainage Plan must be submitted to the Department of Public Works with building permit applications for all new single-family residences and separate accessory structures associated with single-family residences. The guidelines include providing minimum slopes of two percent where possible to facilitate site drainage; providing the locations of all roof downspouts; directing roof and site drainage to pervious areas; and requiring drainage systems for all exterior basement-level spaces such as lightwells, patios, or stairwells.
- **Guidelines and Standards for Land Use near Streams.** The City has adopted the Santa Clara Valley Water Resources Protection Collaborative's manual of tools, procedures, and standards to protect streams and streamside resources in Santa Clara County. The manual provides clear guidance to property owners and developers about how to design and construct streamside development projects in a way that protects streams and their resources with the benefits of reduced erosion, improved flood protection, and enhanced water quality.

UTILITIES AND SERVICE SYSTEMS

Storm Drain Master Plan

Palo Alto's *Storm Drain Master Plan* was first developed in 1993. Since then, the City's drainage system has been expanded and upgraded. The City prepared a *Storm Drain Master Plan Update* in June 2015. The *Master Plan Update* plans for new storm drain projects to further improve the storm drain system in the city.

Existing Conditions

The City owns and maintains a municipal storm drain system consisting of approximately 107 miles of pipeline and 2,750 catch basins, 800 manholes, and six pump stations. These improvements are located within the Palo Alto public road right-of-way. Storm drain systems within private streets or private development are privately maintained but are permitted to drain into the public system. The storm drain system is separated into four watershed areas and ultimately drains to San Francisco Bay via one of four local creeks: San Francisquito, Matadero, Barron, and Adobe Creek. Matadero, Barron, and Adobe Creeks are owned and maintained by various agencies. San Francisquito Creek forms a boundary between Santa Clara County and San Mateo County and is maintained by Cities of Palo Alto, East Palo Alto, and Menlo Park and the SCVWD, as well as property owners. Most streets have curb and gutter that direct surface runoff into inlets that drain stormwater runoff into the underground storm drainage network. The storm drain network includes inlets, pipes, bubblers, and manholes that are installed and built per the Palo Alto's Standard Drawings and Specification. The City's storm drain pipe systems are designed for a 10-year storm event and 6-hour duration and the hydrology and hydraulics design criteria conform to the Santa Clara County Storm Drainage Manual. Stanford University owns and operates its own storm drain system, which primarily serves the Stanford University campus and serves the Stanford University Medical Center (SUMC), located within the city limits. Stormwater runoff is collected in Stanford's storm drainage system, which consists of an extensive system of piping and drainage ditches. The campus (and the SUMC) spans two watersheds: the San Francisquito Creek watershed in the northwest part of campus, and the Matadero Creek watershed in the southeast. Stanford's San Francisquito Creek watershed runoff is conveyed through large pipelines all the way to the creek just south of El Camino Real. The Matadero Creek watershed runoff is conveyed to a large Caltrans storm drain along El Camino that conveys storm water to Matadero Creek.

Over the last decade, Stanford has incorporated storm water detention and storm water quality treatment into its drainage system. Detention basins in both watersheds receive runoff from large storms, avoiding increases in peak runoff flow rates. Stormwater treatment facilities, including hydrodynamic separation and vegetated swales, have been installed to meet recently established runoff treatment regulations.⁶⁹

The Stanford storm drainage system is managed by the Water Services and Civil Infrastructure Group within Utilities Services in the university's Sustainability and Energy Management Department.

⁶⁹Stanford University, Storm Drainage System web page http://lbre.stanford.edu/sem/Storm_Drainage_System, accessed October 23, 2015.

UTILITIES AND SERVICE SYSTEMS

In the upper watershed areas of the city and SOI, storm drain flows directly to creeks by gravity, but, due to relatively flat slopes and low-lying land, much of the lower watershed is discharged to creeks through one of the City's six stormwater pump stations.⁷⁰ The SCVWD is responsible for maintenance and improvements in the creeks and flood control channels; their design standards are to contain the 100-year flood. Creeks and flood control channels are designed to higher standards because they are regional drainage facilities with the potential to inflict substantial property damage and injury or death over a widespread area, whereas storm drain overflows typically result in localized flooding of streets and intersections.

In 1989, the City Council created a separate enterprise fund to pay for storm drain maintenance, capital improvements, and stormwater quality programs. The storm drain fee is collected from each property on the City's monthly utility bill.

Under Provision C.3 of the MRP, the co-permittees (including the City of Palo Alto) use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of LID techniques.

The MRP requires each municipal agency to reduce and control trash loads from its own MS4s. The City must implement a *Long Term Trash Load Reduction Plan* starting at 40 percent reduction by 2014, 70 percent by 2017, and 100 percent by 2022.

The MRP requires Palo Alto to install trash capture devices in its municipal storm drain system to capture and allow for the removal of all trash (down to five millimeters—the approximate diameter of a cigarette butt) and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage. In compliance with these requirements mandated in the MRP, the City installed two large trash capture devices in July 2012 using Association of Bay Area Government (ABAG) grant funding and matching funds from the City. Trash Capture devices were installed at the intersection of Ventura Avenue and Park Boulevard and at 4040 Park Boulevard. The trash capture device at 4040 Park Boulevard has a trash flow capacity between 7.7 cubic feet per second (cfs) and 15.4 cfs, while the device at the intersection of Ventura Boulevard and Park Boulevard has a capacity of 2.7 cfs to 5.4 cfs. The devices are maintained by the Public Works department at least annually. In addition, the City has entered into an agreement with the SCVWD for the installation of trash booms in Adobe and Matadero creeks. The booms capture floating trash and debris from April to November.

The City submits annual reports in compliance with the MRP on all activities related to stormwater hydrology and pollution prevention that are implemented by various departments.

⁷⁰ City of Palo Alto, 2004, Urban Runoff Management Plan, <http://www.cityofpaloalto.org/civicax/filebank/documents/7151>, accessed October 21, 2015.

UTILITIES AND SERVICE SYSTEMS

Cities along the San Francisco Bay, such as Palo Alto, are particularly vulnerable to rising sea levels. Along the San Francisco Bay, sea levels are expected to rise up to 69 inches due to climate change.⁷¹ Rising sea levels pose a significant threat to Palo Alto due to the increased risk of inundation of critical structures located in a floodplain and along the shoreline. As described in the City of Palo Alto Annex to the *Santa Clara County Local Hazard Mitigation Plan*, critical facilities at risk to sea level rise include stormwater pump stations. These facilities are located along or near the shoreline and are of particular concern because they provide essential public services, and their compromise during a hazardous event could further aggravate the situation.

4.14.3.2 STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains standards of significance for the evaluation of a project's impacts. Section 15064.7 of the CEQA Guidelines encourages each public agency to develop and publish its own thresholds of significance that the agency uses in evaluating the significance of environmental effects for projects in its jurisdiction. The City of Palo Alto prepared its *Environmental Criteria Used by the City of Palo Alto* in 2007. In determining which standards of significance to use for evaluating the public services and recreation impacts of the proposed Plan, Appendix G of the CEQA Guidelines and the City's published environmental criteria were considered. The analysis in Section 4.14.3.3 uses the City's standards of significance for stormwater utilities. The proposed Plan would result in a significant impact to stormwater facilities if it would:

- Require or result in the construction of new stormwater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project.
- Result in a substantial physical deterioration of a utility facility due to increased use as a result of the project.

4.14.3.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative stormwater collection impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

All potential impacts described below would be the same for all scenarios. As such, the scenarios are not distinguished below.

⁷¹ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

UTILITIES AND SERVICE SYSTEMS

UTIL-10 The proposed Plan would not require or result in the construction of new stormwater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant– All Four Scenarios)

Summary: Development allowed by all four scenarios would lead to increases in housing units and population in the city and SOI. Nevertheless, each new development or redevelopment project would be required to comply with the C.3 provisions of the MRP and implement BMPs and LID features to minimize stormwater runoff impacts. In particular, during construction all projects would be required to implement flow control BMPs to minimize potential impacts. Also, none of the scenarios propose conversion of open space areas, creeks, or wetlands to impervious surfaces and none of the scenarios would alter the course of a stream or river. The Public Works Department requires all new development or redevelopment projects to provide storm drain flow and detention calculations, including pre-project and post-project conditions and flow rates. On-site stormwater detention is also required as per the C.3 provisions of the MRP. In addition, per section C.3.j, the Permittees shall complete and implement a Green Infrastructure Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements. Given these conditions placed on development. Given these conditions placed on development, all four scenarios would result in a less-than-significant impact.

The proposed Plan could substantially increase the rate, volume, or flow duration of stormwater runoff or alter the existing drainage pattern of the site or area if it would allow a significant increase in impervious surfaces. This could result in an increase in storm water runoff, higher peak discharges to drainage channels, and the potential to increase flows in drainage channels, creeks, and storm drains. However, all development and redevelopment projects that create or replace 10,000 square feet or more of impervious space, as well as certain developments that create or replace 5,000 square feet or more of impervious surface (e.g., auto service facilities, retail gasoline outlets, restaurants and stand-alone uncovered parking lots and uncovered parking lots that are part of a development project if the parking lot creates and/or replaces 5,000 square feet or more of impervious surface), would be required to comply with the C.3 provisions of the MRP requirements and implement various BMPs and LID features that include site design, stormwater treatment, runoff retention, and peak flow management.

Within Palo Alto, all new development and redevelopment projects under the four scenarios would be required to implement construction phase BMPs. Typical construction BMPs for minimizing erosion and siltation, for example, include silt fences, fiber rolls, catch basin inlet protection, water trucks, street sweeping, and stabilization of truck entrance/exits. Also, each new development or redevelopment project that disturbs one or more acre of land would be required to prepare and submit a SWPPP to the SWRCB that describes the measures to control discharges from construction sites. The City of Palo Alto also requires preparation and submittal of an Erosion and Sediment Control Plan for review by the Director of Public Works prior to the issuance of grading permits. The construction of stormwater facilities, implementation

UTILITIES AND SERVICE SYSTEMS

of BMPs, and preparation of related plans would serve to minimize any potential impacts, rather than create adverse impacts.

With implementation of these measures, and as further discussed in UTIL-11 below, impacts associated with construction of stormwater runoff facilities for future development allowed by the proposed Plan would be *less than significant*.

Applicable Regulations:

- California Water Code Sections 13000 et seq.: Porter-Cologne Water Quality Act
- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- City of Palo Alto Municipal Code 16.11 – Stormwater Pollution Prevention
- City of Palo Alto Municipal Code 16.28 – Grading and Erosion and Sediment Control
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: Development under all four scenarios would be subject to existing State, regional, and local regulations and procedures that would prevent potential impacts from the construction of new stormwater facilities or expansion of existing facilities. Therefore, this impact would be less than significant.

UTIL-11 The proposed Plan would not result in adverse physical impacts from new or expanded utility facilities required to provide service as a result of the project. (Less than Significant– All Four Scenarios)

Summary: Development allowed by all four scenarios would lead to increases in housing units and population in the city and SOI. Since the city is largely built out, new development or redevelopment would primarily occur in areas that are already covered with impervious surfaces. Thus, changes in stormwater flow volumes or drainage patterns could require construction and operation of new or expanded stormwater facilities. However, each new development or redevelopment project would be required to comply with the C.3 provisions of the MRP and implement BMPs and LID features to minimize stormwater runoff impacts. Moreover, none of the scenarios propose conversion of open space areas, creeks, or wetlands to impervious surfaces and none of the scenarios would alter the course of a stream or river. The City of Palo Alto's Engineering Design Standards require all new storm drains to be designed to convey the flow from a 10-year storm event and six-hour duration. The Public Works Department also requires all new development or redevelopment projects to provide storm drain flow and detention calculations, including pre-project and post-project conditions and flow rates. Finally, on-site stormwater detention is also required

UTILITIES AND SERVICE SYSTEMS

as per the C.3 provisions of the MRP. Given these conditions placed on development, all four scenarios would result in a less-than-significant impact.

The proposed Plan would result in a significant impact if it would cause increases in stormwater sufficient to require new or expanded stormwater facilities, the construction of which could cause environmental impacts. All new and redevelopment projects that create or replace 10,000 square feet or more of impervious space, as well as certain developments that create or replace 5,000 square feet or more of impervious surface (i.e., auto service facilities, retail gasoline outlets, restaurants and stand-alone uncovered parking lots and uncovered parking lots that are part of a development project if the parking lot creates and/or replaces 5,000 square feet or more of impervious surface), would be required to comply with the C.3 provisions of the MRP requirements, including implementing various post-construction BMPs and LID features that include site design, stormwater treatment, runoff retention, and peak flow management.

For projects that create or replace one acre or more of impervious surface, post-project stormwater peak flows discharged from the site must not exceed pre-project flow rates, if the site is in a HM area. These measures will minimize the amount of stormwater runoff from the new sites. New on-site storm drain systems must be designed to convey the stormwater runoff from a 10-year storm and project applicants must demonstrate that the runoff discharged from the site to the City's storm drain system will not exceed its carrying capacity. In areas subject to the jurisdiction of the SCVWD (i.e., discharge to regional channels or streams), the stormwater runoff generated from the 100-year design storm must be safely conveyed without contributing to downstream or upstream flooding conditions. In addition, per section C.3.j, the Permittees shall complete and implement a Green Infrastructure Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements.

Within the City of Palo Alto, all new development and redevelopment projects will be required to comply with post-construction site design measures, source control measures, and stormwater treatment measures. The Public Works Department requires all new development or redevelopment projects to provide storm drain flow and detention calculations that compare pre- and post-project flow rates and volumes. The calculations must be signed and stamped by a registered civil engineer. On-site stormwater detention may also be required to lessen the project's impact on the City's storm drain system. A final grading and drainage plan must be prepared by a licensed professional that shows the existing and proposed on-site drainage layout, locations, and elevations and shows the conveyance of stormwater to the nearest City storm drain system. Existing drainage patterns, including the accommodation of off-site runoff, must be maintained to the extent possible. The Public Works Department encourages developers to retain stormwater on-site to the extent feasible by directing runoff to landscaped areas, constructing subsurface infiltration systems or bioretention areas, and using pervious pavement where feasible.

Changes in the timing, peak discharge, and volume of runoff from a site due to land development is known as "hydromodification." When a site is developed, some of the rainwater can no longer infiltrate into the soil so it flows off-site at faster rates and greater volumes in a shorter period of time. As a result, erosive levels

UTILITIES AND SERVICE SYSTEMS

of flow can occur in creeks and channels downstream of the project. Projects in susceptible areas are subject to hydromodification management (HM) requirements, as defined by the HMP Applicability Map for Palo Alto.⁷² The HM requirement states that all projects that create and/or replace one acre or more of impervious surface within the mapped susceptible areas must implement flow control measures so that post-project runoff rates and durations do not exceed estimated pre-project rates and durations. Some of the areas south of State Route 82 are within the area subject to HM requirements.

With implementation of these measures, impacts associated with operation of new or expanded storm water utilities for future development allowed by the proposed Plan would be less than significant. Therefore, implementation of the proposed Plan would have a *less-than-significant* impact.

Applicable Regulations:

- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- City of Palo Alto Municipal Code 16.11 – Stormwater Pollution Prevention
- City of Palo Alto Municipal Code 16.28 – Grading and Erosion and Sediment Control
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: Development under all four scenarios would be subject to existing State, regional, and local regulations and procedures that would prevent potential impacts from the construction of new stormwater facilities or expansion of existing facilities. Therefore, this impact would be less than significant.

UTIL-12 The proposed Plan would not result in a substantial physical deterioration of a utility facility due to increased use as a result of the project. (Less than Significant– All Four Scenarios)

Summary: Development allowed by all four scenarios would lead to increases in housing units and population in the city and SOI that could result in changes in stormwater flow volumes or drainage patterns. Nevertheless, each new development or redevelopment project would be required to comply with the C.3 provisions of the MRP and implement BMPs and LID features to minimize stormwater runoff impacts. None of the scenarios propose the conversion of open space areas, creeks, or wetlands to impervious surfaces and none of the scenarios would alter the course of a stream or river. In addition, the City of Palo Alto's Engineering Design Standards require all new storm drains to be designed to convey the flow from a

⁷² Hydromodification Program Applicability Map for Palo Alto, http://www.scvurppp-w2k.com/HMP_app_maps/Palo_Alto_HMP_Map.pdf, accessed October 16, 2015.

UTILITIES AND SERVICE SYSTEMS

10-year storm event and six-hour duration. Given these conditions placed on development, all four scenarios would result in a less-than-significant impact.

The proposed Plan would result in a significant impact if increased stormwater utility usage as a result of development allowed by the plan would result in substantial physical deterioration of those facilities. As discussed in UTIL-11 above, the Public Works Department requires all new development or redevelopment projects to provide storm drain flow and detention calculations, including pre-project and post-project conditions and flow rates. On-site stormwater detention is also required as per the C.3 provisions of the MRP.

Within Palo Alto, all new development and redevelopment projects will be required to implement construction phase BMPs as well as post-construction site design measures, source control measures, and stormwater treatment measures. Typical construction BMPs to minimize erosion and siltation include silt fences, fiber rolls, catch basin inlet protection, water trucks, street sweeping, and stabilization of truck entrance/exits. Also, each new development or redevelopment project that disturbs one or more acre of land would be required to prepare and submit a SWPPP to the SWRCB that describes the measures to control discharges from construction sites. The City of Palo Alto also requires preparation and submittal of an Erosion and Sediment Control Plan for review by the Director of Public Works prior to the issuance of grading permits.

All new and redevelopment projects that create or replace 10,000 square feet or more of impervious space (or 5,000 square feet for certain types of development, as discussed above) would be required to comply with the C.3 provisions of the MRP requirements, including implementing various post-construction BMPs and LID features that include site design, stormwater treatment, runoff retention, and peak flow management. Also, for projects that create or replace one acre or more of impervious surface, post-project stormwater peak flows discharged from the site must not exceed pre-project flow rates, if the site is in a HM area. These measures will minimize the amount of stormwater runoff from the new sites.

With implementation of these measures, impacts associated with deterioration of storm water utilities would be *less than significant*.

As described in Section 4.14.3.2, Existing Conditions, sea levels along the San Francisco Bay are expected to rise up to 69 inches due to climate change.⁷³ The City's stormwater pump stations are critical facilities at risk to sea level risk. Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. The impacts associated with sea level rise are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change.

⁷³ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

UTILITIES AND SERVICE SYSTEMS

Applicable Regulations:

- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- City of Palo Alto Municipal Code 16.11 – Stormwater Pollution Prevention
- City of Palo Alto Municipal Code 16.28 – Grading and Erosion and Sediment Control
- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: Development under all four scenarios would be subject to existing State, regional, and local regulations and procedures that would prevent potential impacts associated with the deterioration of stormwater utilities. Therefore, this impact would be less than significant.

4.14.3.4 CUMULATIVE IMPACTS

UTIL-13	The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to stormwater facilities. (Less than Significant– All Four Scenarios)
----------------	---

Summary: All four scenarios would result in slightly different amounts and locations of residential and non-residential development. When considered along with cumulative projects, regulatory requirements and emergency planning that would apply equally to all scenarios would ensure that cumulative impacts are less than significant.

As discussed in Chapter 4, this EIR takes into account growth projected by the proposed Plan within Palo Alto and its SOI, in combination with impacts from projected growth in the rest of Santa Clara County and the surrounding region. The geographic context used for the cumulative assessment of stormwater facility impacts encompasses the four watersheds that include the City of Palo Alto and SOI: San Francisquito Creek watershed, Matadero Creek watershed, Barron Creek watershed, and Adobe Creek watershed.

As discussed previously, development within the city and SOI would require conformance with State and local policies and regulations that would reduce hydrologic and stormwater facility impacts to less-than-significant levels. When applicable, any additional new development within the city would be subject, on a project-by-project basis, to independent CEQA review as well as design guidelines, Municipal Code requirements, and other applicable City policies and procedures that reduce impacts related to hydrology and stormwater facilities. More specifically, potential changes related to stormwater flows, drainage, impervious surfaces, and flooding would be minimized by implementation of stormwater control measures, retention, infiltration, and LID measures, and review by the City's Public Works Department to integrate

UTILITIES AND SERVICE SYSTEMS

measures to reduce potential storm drain and flooding impacts. In addition, per section C.3.j, the Permittees under the MRP shall complete and implement a Green Infrastructure Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements.

Under the NPDES requirements described in Section 4.8.1.1 above, all new development or redevelopment projects that create or replace 10,000 square feet of impervious surface (or 5,000 square feet for certain types of development) must comply with the C.3 provisions of the MRP and implement site design, source control, and LID features. In addition, all projects that create or replace one acre or more of impervious surface in hydromodification areas must match post-project peak flow rates to pre-project peak flows rates. These measures will ensure that new cumulative development and/or redevelopment projects do not contribute to on-site or off-site flooding and will minimize potential impacts to the existing storm drain system.

Within the cumulative setting, in areas subject to the jurisdiction of SCVWD (i.e., discharge to regional channels or streams), the stormwater runoff generated from the 100-year design storm must be safely conveyed without contributing to downstream or upstream flooding conditions.

All cumulative projects would be subject to similar permit requirements and would be required to comply with City ordinances and proposed Plan policies, as well as numerous federal, State, and regional stormwater regulations that control construction-related and operational discharge of stormwater. The stormwater regulations implemented by the San Francisco Bay RWQCB take a basin-wide approach and consider stormwater flow in a regional context. For these reasons, impacts of the proposed Plan on hydrology and stormwater facilities are not cumulatively considerable and the cumulative impact would be *less than significant*.

Applicable Regulations:

- California Water Code Sections 13000 et seq.: Porter-Cologne Water Quality Act
- San Francisco Bay RWQCB Municipal Regional Stormwater Permit (Order Number R2-2015-0049) and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083
- SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ
- SWRCB Order No. 97-03 DWQ for Storm Water Discharges Associated with Industrial Activities, NPDES General Permit No. CAS000001
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- SCVWD Ordinance 83-2 – Santa Clara Valley Water District Act
- City of Palo Alto Municipal Code Chapter 16.14, California Green Building Standards Code
- City of Palo Alto Municipal Code Chapter 16.11, Stormwater Pollution Prevention
- City of Palo Alto Municipal Code Chapter 16.28, Grading and Erosion and Sediment Control
- City of Palo Alto Municipal Code Chapter 16.09, Sewer Use Ordinance
- City of Palo Alto Construction Dewatering System Policy

UTILITIES AND SERVICE SYSTEMS

- City of Palo Alto Grading and Drainage Guidelines for Residential Development
- City of Palo Alto Guidelines and Standards for Land Use near Streams

Significance before Mitigation: All cumulative projects would be subject to federal, State, regional, and local regulations and procedures that control construction-related and operational discharge of stormwater. Therefore, none of the scenarios would contribute to cumulative impacts and the impact would be less than significant.

4.14.4 SOLID WASTE COLLECTION, RECYCLING AND DISPOSAL

This section describes the regulatory framework, existing conditions, and impacts related to solid waste disposal services in Palo Alto. GreenWaste of Palo Alto is the City's contractor for the collection and transportation of municipal solid waste, commercial organics, residential yard trimmings, and mixed recycling.

4.14.4.1 ENVIRONMENTAL SETTING

Regulatory Framework

State Laws and Regulations

California Integrated Waste Management Act

California's Integrated Waste Management Act of 1989 (AB 939) requires that cities and counties divert 50 percent of all solid waste from landfills as of January 1, 2000 through source reduction, recycling, and composting. AB 939 also establishes a goal for all California counties to provide at least 15 years of ongoing landfill capacity. To help achieve this, the act requires that each City and County prepare a Source Reduction and Recycling Element to be submitted to the Department of Resources Recycling and Recovery (CalRecycle), a new department within the California Natural Resources Agency, which administers programs formerly managed by the State's Integrated Waste Management Board and Division of Recycling.

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is calculated as a jurisdiction's reported total disposal of solid waste divided by a jurisdiction's population. CalRecycle sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per capital disposal rate.⁷⁴

⁷⁴ California Integrated Waste Management Board, <http://www.calrecycle.ca.gov/LGCentral/Basics/PerCapitaDsp.htm#Jurisdiction>, accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

In 2011, Assembly Bill (AB) 341 was passed, which sets a State policy goal of not less than 75 percent of solid waste that is generated to be source reduced, recycled, or composted by the year 2020.

California Solid Waste Reuse and Recycling Access Act of 1991⁷⁵

The California Solid Waste Reuse and Recycling Access Act of 1991 required CalRecycle to develop by March 1, 1993 a model ordinance for adoption of recyclable materials in development projects. Local agencies were then required to adopt the model, or an ordinance of their own, that establishes standards that include space allocation for the collection and loading of recyclable materials in new development projects by September 1, 1993. In 1992, the City amended Title 16 (Architectural Review) and Title 18 (Zoning) of its Municipal Code that established standards that include space allocation for the collection and loading of recyclable materials in new development projects.

Mandatory Commercial Recycling Measure⁷⁶

Pursuant to the California Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas (GHG) emissions reduction into law, the Air Resources Board adopted the *AB 32 Scoping Plan*, which includes the Mandatory Commercial Recycling Measure. The Mandatory Commercial Recycling Measure focuses on increasing commercial waste diversion as a way to reduce GHG emissions. Its goal is to reduce GHG emissions by five million metric tons of carbon dioxide (CO₂) equivalents. To achieve the measure's objective, an additional two to three million tons of materials annually will need to be recycled from the commercial sector by the year 2020 and beyond.

CalRecycle adopted the regulation at its January 17, 2012 Monthly Public Meeting. The regulation was approved by the Office of Administrative Law on May 7, 2012 and became effective immediately. On June 27, 2012 the Governor signed SB 1018, which included an amendment that requires businesses that generate four cubic yards or more of commercial solid waste per week or a multi-family residential dwelling with five or more units to arrange for recycling services. This requirement became effective on July 1, 2012.

CALGreen Building Code

The California Green Building Standards Code (CALGreen) is Part 11 of Title 24 of the California Code of Regulations. CALGreen came into effect for all projects beginning after January 1, 2011. CALGreen Section 4.408, Construction Waste Reduction Disposal and Recycling, mandates that, in the absence of a more stringent local ordinance, a minimum of 50 percent of non-hazardous construction and demolition debris must be recycled or salvaged. CALGreen requires that all applicants have a waste management plan for on-site sorting of construction debris. The waste management plan shall do the following:

⁷⁵ CalRecycle, <http://www.calrecycle.ca.gov/LGCentral/Library/localdocs/policy.htm>, accessed February 4, 2015.

⁷⁶ CalRecycle, <http://www.calrecycle.ca.gov/recycle/commercial/>, accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

- Identify the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale.
- Specify if materials will be sorted on-site or mixed for transportation to a diversion facility.
- Identify the diversion facility where the material collected will be taken.
- Identify construction methods employed to reduce the amount of waste generated.
- Specify that the amount of materials diverted shall be calculated by weight or volume, but not by both.

Regional and Local Regulation

Santa Clara County Integrated Waste Management Plan

The California Integrated Waste Management Act of 1989 (AB 939) was passed to address concerns about increases in waste and a decrease in landfill capacity. As noted, AB 939 mandated jurisdictions to divert 50 percent of their landfill waste by the year 2000. The Act (AB 939) also requires that each county adopt a *Countywide Integrated Waste Management Plan* (CIWMP) to provide structure and guidance for waste management programs on a countywide basis. The Santa Clara CIWMP includes an analysis of Santa Clara County demographics and population. The CIWMP serves as the planning document to ensure that the mandated 50 percent reduction in the amount of solid waste disposed in landfills by the year 2000 level is maintained and efforts continue for further waste reduction. The CIWMP incorporates the following solid waste planning documents for the County:

- Source Reduction and Recycling Element
- Non-disposal Facility Element
- Household Hazardous Waste Element

City of Palo Alto Zero Waste Plan

In 2004 the City Council made the adoption of “Zero Waste,” a guiding principle to create a framework for defining how Palo Alto solid wastes will be managed in the future. The “Zero Waste” Plan is theoretically defined as “a systems approach to avoid the creation of waste in the first place.” In practice, the City recognized the notion of Zero Waste would challenge basic assumptions, business practices, and day-to-day behavior in making decisions about what the City and its businesses and residents buy and consume, and how they handle the materials and by products left over from those decisions. The *Zero Waste Strategic Plan* was published in 2005. The *Zero Waste Operational Plan* was completed in June 2007, and identified a number of programmatic, policy, and infrastructure-related elements to guide the City’s short and long-term zero waste efforts. The City Council approved the *Zero Waste Operational Plan* on September 17, 2007.

City of Palo Alto Municipal Code

The City of Palo Alto Municipal Code contains all ordinances for the City.

UTILITIES AND SERVICE SYSTEMS

Chapter 5.20, Collection, Removal, Disposal of Solid Wastes and Recyclable Materials

Chapter 5.20 embodies the City's policy that the accumulation, collection, removal, and disposal of solid waste and recyclable materials must be controlled by the City for the protection of the public health, safety and welfare. The City finds that, to give practical effect to this policy, a comprehensive system for the periodic collection, removal, and disposal of solid waste and recyclable materials from all places or premises is essential and benefits all occupants of places or premises and, therefore, all such occupants are made liable for the solid waste and recyclable materials collection charges established by the council for the collection, removal, and disposal of solid waste and recyclable materials.

Chapter 5.24, Construction and Demolition Debris Diversion Facilities

This chapter, known as the Construction and Debris (C&D) Ordinance, covers approved facilities to receive and recycle debris. It is the City's policy that the accumulation, collection, removal, and disposal of waste associated with construction and demolition activities must be controlled by the City for the protection of the public health, safety, and welfare as well as the natural environment. Required minimum diversion rates by project type are covered by CALGreen and the City's local amendments in Chapter 16, Building Regulations.

Chapter 5.30, Expanded Polystyrene and Non-recyclable Food Service Containers

Except as provided by Chapter 5.30.030, this chapter prohibits food vendors from providing prepared food in disposable food service containers made from expanded polystyrene or non-recyclable plastic. In addition, except as provided by Chapter 5.30.030, all City facilities, City managed concessions, City sponsored events, and City permitted events are prohibited from using disposable food service containers made from expanded polystyrene or non-recyclable plastic.

Chapter 5.35, Retail and Food Service Establishment Checkout Bag Requirements

This chapter establishes the types of checkout bags permitted at retail service and food service establishments. Retail service establishments within the City of Palo Alto shall provide or make available to a customer only Reusable Bags or Recyclable Paper Checkout Bags for the purpose of carrying away goods or other materials from the point of sale, subject to the terms of this chapter. Certain single use plastic bags are exempt from this ordinance, such as dry cleaning clothes bags, garbage bags, and plastic bags integral to the integrity of the product. A minimum \$0.10 fee is prescribed to be charged for the use of paper bags to cover the cost of compliance with the ordinance and promotion of the use of reusable bags.

Chapter 16.14, Green Building Standards Code Adopted and Amended

Chapter 16.14 of the City's Municipal Code describes CALGreen and any local amendments made, with indications of addition or amendments to the State Standards. The Green Building Ordinance for the City of Palo Alto generally provides minimum Green Building Requirements for new construction and renovation

UTILITIES AND SERVICE SYSTEMS

and additions. The purpose of CALGreen generally is to improve public health, safety, and general welfare through enhancement of design and construction of buildings using building concepts reducing negative impacts or having positive environmental impacts and encouraging sustainable construction practices. With respect to solid waste, CALGreen and the City of Palo Alto amendments apply to material conservation and resource efficiency during the planning, design, operation, construction, use, and occupancy of residential and non-residential construction.

On April 20, 2015, the City Council adopted an ordinance repealing and restating PAMC Chapter 16.14 to adopt and amend CALGreen. The April 20, 2015 ordinance includes Section A4.408.1 Enhanced Construction Waste Reduction. Section A4.408.1 is adopted as mandatory and is amended to read:

Nonhazardous construction and demolition debris generated at the site is diverted to recycle or salvage facilities. 75 percent construction waste reduction is required for all Residential Projects, including new construction, additions, and alterations, as long as the construction has a valuation exceeding \$25,000. Residential projects with a lower valuation shall remain subject to California Green Building Code Chapter 4 mandatory requirements.

Chapter 17.04, Hazardous Material Storage

Chapter 17.04 of the City's Municipal Code establishes regulations to prevent and control unauthorized discharges of hazardous materials. The provisions of the chapters establish regulations for new, existing, and out-of-service storage facilities, and require a permit for underground storage tanks in compliance with California Health and Safety Code Section 25281(h).

Existing Conditions

Since 2008, GreenWaste of Palo Alto, a joint venture between GreenWaste Recovery, Inc. and Zanker Road Resource Management, Ltd. (Zanker) formed for the purpose of holding and servicing the contract with the City, is the City's contractor for the collection and transportation of municipal solid waste, commercial organics, residential yard trimmings, and mixed recycling. GreenWaste of Palo Alto is a locally based and privately owned company. The term of the initial agreement was November 24, 2008 through June 30, 2017 and was reinstated and amended with a new termination date of June 30, 2021.

Solid waste from Stanford University campus (within the city SOI) is managed by Peninsula Sanitary Service, Inc. (PSSI) and the Stanford Recycling Center. PSSI has served Stanford University with recycling, composting, and solid waste management services for over 50 years. In 2014, Stanford University diverted 65 percent of its waste from landfill through a comprehensive program of source reduction, reuse, recycling, and composting.

Palo Alto residential and commercial recycling is processed at the GreenWaste Material Recovery Facility (MRF) processing facility located in the City of San Jose. This 96,000-square-foot facility also processes and

UTILITIES AND SERVICE SYSTEMS

recycles residential and commercial trash, yard trimmings, curbside recyclables, food waste, and construction and demolition debris from other communities.

Mixed construction and demolition debris is processed at the Zanker Material Processing Facility located at 675 Los Esteros Road in San Jose. The Zanker Road Materials Processing Facility can accept up to 1,250 tons per day of construction waste and currently averages approximately 1,000 tons per day, six days per week.⁷⁷ The total remaining capacity for the Zanker Materials Processing Facility is 600,000 cubic yards, and has a total capacity of approximately 1.2 million cubic yards.⁷⁸ Source separated construction and demolition debris boxes with recoverable commodities may be hauled and processed by any independent hauler and are not subject to the terms of the GreenWaste of Palo Alto contract with the City.

All municipal solid waste (MSW) is processed at the Sunnyvale Materials Recovery and Transfer Station (SMaRT Station) located at 301 Carl Road, Sunnyvale, California, where recyclable materials in the MSW are recovered. The SMaRT Station recovers around 18 percent of the material that would have otherwise been landfilled. Palo Alto is a partner in the SMaRT Station and owns 21.27 percent of the capital equipment within the facility and pays a 17.38 percent share for the operations expenses. Any remaining trash is landfilled primarily at the Kirby Canyon Landfill in San Jose. The Palo Alto Landfill, as of February 1, 2012, was no longer accepting waste. The Palo Alto Landfill is now permanently closed.

The residential food scraps and yard trimmings are anaerobically digested and composted at the Zero Waste Energy Development (ZWED) facility in north San Jose. Commercial organics, which include food scraps, food soiled paper, and compostable plastics, are also processed at ZWED. Palo Alto collects around 10,000 tons of commercial organics every year.

Non-recyclable material is transferred to the Kirby Canyon Landfill owned by Waste Management, Inc. Kirby Canyon has a remaining capacity of approximately 21.6 million tons of a total projected capacity of approximately 29 million tons.⁷⁹

Palo Alto achieved a waste diversion rate of 80 percent in 2014,⁸⁰ well above the State-mandated rate of 50 percent. The City has established a goal of virtually eliminating waste being burned or buried by 2021 and took steps to achieve that goal through the *ZeroWaste Operational Plan*. The City has implemented many of the recommended policies in the *ZeroWaste Operational Plan*, which include single-stream recycling for residential and commercial customers, a commercial organics program, and the use of zero waste specialists to inform and educate commercial customers, and has begun pilot testing residential food waste collection.

⁷⁷ Gross, Michael. Zanker Recycling. Personal communication with Ricky Caperton, PlaceWorks. August 26, 2014.

⁷⁸ Gross, Michael. Zanker Recycling. Personal communication with Ricky Caperton, PlaceWorks. August 26, 2014.

⁷⁹ City of Palo Alto, Stanford University Medical Center Facilities Renewal and Replacement Draft EIR, page 3.15-12.

⁸⁰ City of Palo Alto Zero Waste Plan Progress Report, <http://cityofpaloalto.org/gov/depts/pwd/zerowaste/about/progress.asp>, accessed December 10, 2015

UTILITIES AND SERVICE SYSTEMS

In 2014, Palo Alto's per capita solid waste disposal rate for residents was 3.6 pounds per day (PPD); the per capita disposal rate target for residents according to CalRecycle is 8.2 PPD.⁸¹ The City's per capita solid waste disposal rate for employees in 2014 was 2.5 PPD; the CalRecycle per capita disposal rate target for employees is 7.1 PPD.

CalRecycle⁸² reports that in 2014 a total of 43,730 tons of solid waste from Palo Alto was disposed at 17 different landfills. It is assumed that the SOI—which generates about 13 percent⁸³ of the solid waste generated by the city—is served by the same landfills as the city. Sixty-two percent (625 percent; 27,153 tons) of Palo Alto's solid waste in 2014 went to one of those facilities: Kirby Canyon Landfill. The two landfills receiving the second and third largest amount of solid waste from Palo Alto in 2014 were:

- Monterey Peninsula Landfill (9,287 tons), and
- Ox Mountain Sanitary Landfill (also known as Corinda Los Trancos Landfill) (4,446 tons).

Kirby Canyon Landfill

The Kirby Canyon Recycling and Disposal Facility is located at 910 Coyote Creek Golf Drive in San Jose. It has a permitted throughput capacity of 2,600 tons per day. Its maximum permitted capacity is 36.4 million cubic yards. It has a “cease operation date” of December 31, 2022.⁸⁴

Monterey Peninsula Landfill

The Monterey Peninsula Landfill is located in Marina, California. It has a permitted throughput capacity of 3,500 tons per day. Its remaining permitted capacity is 48.6 million cubic yards. It has an estimated “cease operation date” of February 28, 2107.⁸⁵

Ox Mountain Landfill

The Ox Mountain Landfill is a sanitary landfill located in Half Moon Bay, California. It has a permitted throughput capacity of 3,598 tons per day. Its remaining permitted capacity is 26.9 million cubic yards. Its estimated closure year is 2023.⁸⁶

⁸¹ CalRecycle Jurisdiction Diversion/Disposal Rate Summary, <http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx>, accessed December 10, 2015.

⁸² CalRecycle Jurisdiction Disposal by Facility Report, <http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportYear%3d2014%26ReportName%3dReportEDRSJurisDisposalByFacility%26OriginJurisdictionIDs%3d362>, accessed October 26, 2015.

⁸³ The quantity of solid waste landfilled in 2014 from the SOI is estimated to be 6,113 tons/year, based on an average of years 2011 - 2013; the quantity of waste landfilled in 2014 from the city is estimated to be 48,075 tons/year (See Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Inputs and Waste sheets, of this EIR).

⁸⁴ CalRecycle, Kirby Canyon Recycling and Disposal Facility (43-AN-0008), <http://www.calrecycle.ca.gov/SWFacilities/Directory/43-AN-0008/Detail/>, accessed June 27, 2015.

⁸⁵ CalRecycle, “Monterey Peninsula Landfill (27-AA-0010)”, <http://www.calrecycle.ca.gov/SWFacilities/Directory/27-AA-0010/Detail>, accessed June 27, 2015.

⁸⁶ CalRecycle, Ox Mountain “Facility Site summary Details: (41-AA-0002)” <http://www.calrecycle.ca.gov/SWFacilities/Directory/41-AA-0002/Detail/>, accessed June 27, 2015.

UTILITIES AND SERVICE SYSTEMS

4.14.4.2 STANDARDS OF SIGNIFICANCE

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains standards of significance for the evaluation of a project’s impacts. Section 15064.7 of the CEQA Guidelines encourages each public agency to develop and publish its own thresholds of significance that the agency uses in evaluating the significance of environmental effects for projects in its jurisdiction. The City of Palo Alto prepared its *Environmental Criteria Used by the City of Palo Alto* in 2007. In determining which standards of significance to use for evaluating the solid waste impacts of the proposed Plan, Appendix G of the CEQA Guidelines and the City’s published environmental criteria were considered. Based on this consideration, a criterion from the CEQA Guidelines was added to the analysis in Section 4.14.4.4. The proposed Plan would result in a significant solid waste impact if it would:

- Be served by a landfill with insufficient permitted capacity.
- Not comply with federal, State, and local statutes and regulations related to solid waste.

4.14.4.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative solid waste collection impacts that could occur as a result of the implementation of the proposed Plan when combined with projects outside of Palo Alto.

All potential impacts described below would be the same for all scenarios. As such, the scenarios are not distinguished below.

UTIL-14 The proposed Plan would be served by landfills with sufficient permitted capacity to accommodate the proposed Plan’s solid waste disposal needs. (Less than Significant– All Four Scenarios)

Summary: Each of the four scenarios would result in a slightly different level of solid waste generation. However, as described below, all four scenarios would be served by adequate landfill capacity. Therefore, all four scenarios would result in a less-than-significant impact.

The 2014 baseline solid waste generation rate for the City of Palo Alto and the SOI was estimated by the City to be 51,265 tons/year.⁸⁷ This 2014 baseline was derived by averaging the solid waste generated by the City and SOI over years 2011 through 2013 (see Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Inputs sheet, of this EIR).

⁸⁷ Average daily cover (ADC) is estimated to be 2,923 tons/year, which yields a total waste + ADC = 54,188 tons/year for baseline (2014). (See Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Inputs and Waste sheets, of this EIR).

UTILITIES AND SERVICE SYSTEMS

Increases in solid waste generation over baseline (2014) in the city and SOI at buildout (2030) are estimated in Table 4.14-5 for each of the four scenarios. The incremental increases shown in Table 4.14-5 are conservative (i.e., they potentially overestimate impacts) because they assume per capita and per employee waste generation rates would remain at 2014 levels.

In 2013, CalRecycle reported that while the overall total of 43,730 tons of solid waste from Palo Alto was disposed at 17 different landfills, the majority (93 percent or 40,886 tons) went to three landfills. Table 4.14-6 compares the maximum daily capacity and estimated closure date for each of the three facilities.

The City's disposal rate per resident in 2014 was 3.6 pounds of solid waste PPD, which was below the CalRecycle target of 7.1 PPD per resident. The disposal rate per business employee in the city in 2013 was 2.5 PPD, which was below the CalRecycle target rate of 8.2 PPD per employee.^{88,89} The City's disposal rates for both residents and employees have been below target rates since 2007.⁹⁰

Two of the three landfills that receive the majority of the city's solid waste are likely to reach their permitted maximum capacities in 2022 (Kirby) and 2023 (Ox Mountain), respectively, as shown in the Table 4.14-6. The other landfill is not estimated to close until 2107 (Monterey Peninsula Landfill). All of these closure dates are after the City's goal year (2021) for achieving virtually zero waste from Palo Alto sent to landfills.⁹¹ One closure date is beyond the horizon year for the proposed Plan (2030). In addition, there are 17 landfills that received waste from the Palo Alto in 2014. If one or more of the three landfills shown in Table 4.14-6 were unavailable in the future, it is likely Palo Alto's solid waste volume could be increased at one or more of the other landfills that already serve Palo Alto.

CalRecycle's documentation does not provide separate data for Stanford University or other portions of the SOI. Therefore, for purposes of this analysis, it is assumed that the SOI is also served by the landfills that serve the city. Furthermore, it is assumed that the employee and worker generation rates for the SOI are similar to the rates for the city.

⁸⁸ CalRecycle, Jurisdiction Diversion Post 2006, <http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx>, accessed October 26, 2015.

⁸⁹ CalRecycle also reports the City's per capita disposal rate 2014 data are still "awaiting review" by the agency. According to the CalRecycle web site, "Awaiting Review" means "The Department has not completed its analysis, or approved the per capita disposal figures or program implementation for the years included in this review cycle." <http://www.calrecycle.ca.gov/LGCentral/DataTools/Reports/BRDefine.htm#Annual>, accessed October 26, 2015.

⁹⁰ The per capita disposal rate target is also known as "the 50 percent equivalent per capita disposal target." It is the amount of disposal Palo Alto would have had during the 2003 – 2006 base period (designated by CalRecycle) if it had been exactly at a 50 percent diversion rate. It is calculated by CalRecycle using the average base period per capita generation for Palo Alto (in pounds), then dividing this generation average in half to determine the 50 percent equivalent per capita disposal target. The target is an indicator for comparison with that jurisdiction's annual per capita per day disposal rate beginning with the 2007 program year.

⁹¹ In October 2005, the City reached beyond the requirements of AB 939 and established a goal of 73 percent diversion by 2011 and to strive for zero waste by eliminating materials sent to landfills by 2021. The City's Zero Waste Operational Plan identifies the policies, programs and facilities that will be needed to reach this goal.

UTILITIES AND SERVICE SYSTEMS

TABLE 4.14-5 INCREASE IN SOLID WASTE GENERATION OVER BASELINE (2014) IN THE CITY AND SOI AT BUILDOUT (2030) – FOUR SCENARIOS

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
New Population	9,405	9,405	11,240	13,260
Residential Rate (PPD)	3.6	3.6	3.6	3.6
Daily Residential Total (pounds)	33,858	33,858	40,464	47,736
Annual Residential Total (tons)	6,179	6,179	7,385	8,712
New Employees	15,870	10,240	13,145	15,870
Employee Rate (PPD)	2.5	2.5	2.5	2.5
Daily Employee Total (pounds)	39,675	25,600	32,862	39,675
Annual Employee Total (tons)	7,241	4,672	5,997	7,241
Grand Total (tons)	13,420	10,851	13,382	15,953

Notes:

New Population and new employees are from Table 3-5 (Project Description).

Residential rate and employee rate are the 2014 CalRecycle solid waste generation rates (pounds per day [PPD]) for Palo Alto.

Annual totals are daily totals (pounds) x 365 days per year divided by 2,000 (pounds per ton).

TABLE 4.14-6 LANDFILLS’ EXISTING DAILY CAPACITY AND ESTIMATED CLOSURE DATE

Landfill Facility	Daily Capacity (tons/day)	Estimated Closure Year
Ox Mountain Landfill	3,598	2023
Kirby Canyon Landfill	2,600	2022
Monterey Peninsula Landfill	3,500	2107

Source: CalRecycle Facility Site Summary Details <http://www.calrecycle.ca.gov/SWFacilities/Directory/>.

Table 4.14-5 shows Scenario 4 generates the greatest solid waste generation increase (15,953 tons per year) over baseline at buildout, while Scenario 2 generates the least (10,851 tons per year). The permitted daily throughput capacity and the projected active life of the three main landfills currently accepting solid waste from the city, as discussed above, can accommodate the baseline generation rate, plus the projected increase in solid waste generation within the city and SOI for Scenario 4. Similarly, Scenarios 1, 2, and 3, with nominally less projected solid waste generation, also would be accommodated. Moreover, the baseline generation rate, plus the projected increased generation rates in Table 4.14-5, do not account for all of the ongoing and planned measures to divert increasing amounts of Palo Alto’s solid waste away from landfills, as discussed further below.

UTILITIES AND SERVICE SYSTEMS

Future development in the city will be required to comply with Municipal Code Chapter 16.14, Section A4.408.1, which requires a minimum of 75 percent of non-hazardous construction and demolition (C&D) debris to be recycled or salvaged. Per Section A4.408, development projects will be required to prepare a Waste Management Plan for on-site sorting of construction debris, which is submitted to the City for approval, in order to ensure that the covered project meets the diversion requirement for reused or recycled C&D debris.

With continued compliance with applicable regulations listed below, solid waste generated from all four scenarios would not exceed the landfill capacity available to the city and the SOI. Therefore, the proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the proposed Project's solid waste disposal needs, resulting in a *less-than-significant* impact.

Applicable Regulations:

- California Integrated Waste Management Act
- Global Warming Solutions Act of 2006, *Scoping Plan*
- CALGreen Building Code
- *City of Palo Alto Zero Waste Plan*
- City of Palo Alto Municipal Code – Chapter 17.04
- City of Palo Alto Municipal Code – Chapter 5.20
- City of Palo Alto Municipal Code – Chapter 5.24
- City of Palo Alto Municipal Code – Chapter 5.30
- City of Palo Alto Municipal Code – Chapter 5.35
- City of Palo Alto Municipal Code – Chapter 16.14

Significance before Mitigation: Development under all four scenarios would be subject to compliance with federal, State, regional, and local regulations and procedures. Therefore, solid waste generated from all four scenarios would not exceed existing landfill capacity, and this impact would be less than significant.

UTIL-15 **Without the adoption of policies to promote recycling and conservation, the proposed Plan could potentially fall out of compliance with federal, State, and local statutes and regulations related to solid waste. (Less than Significant– Scenario 1; Potentially Significant and Mitigable – Scenarios 2, 3, and 4)**

Summary: The potential regulatory impacts would be the same for all scenarios. As described below, the existing Comp Plan includes policies and programs that promote recycling and conservation. These policies would need to remain in place, under all four scenarios, to ensure adequate waste collection and disposal facilities and to minimize solid waste generation. Scenario 1 would retain existing policies and would therefore result in a less-than-significant impact. Because the proposed Plan development is still in process

UTILITIES AND SERVICE SYSTEMS

and it has not yet been decided which policies will be retained as part of the proposed Plan, the impact is potentially significant under Scenarios 2, 3, and 4, requiring mitigation.

As discussed in Sections 4.14.4.1 and 4.14.4.2, the City complies with State and local requirements to reduce the volume of solid waste through recycling and reuse of solid waste. The City's per capita disposal rates for residents and employees are below the target rates established by CalRecycle. The City also has established solid waste recycling requirements in its Municipal Code that are more stringent than state requirements.

Applicable Regulations:

- California Integrated Waste Management Act
- Global Warming Solutions Act of 2006, *Scoping Plan*
- CALGreen Building Code
- *City of Palo Alto Zero Waste Plan*
- City of Palo Alto Municipal Code – Chapter 17.04
- City of Palo Alto Municipal Code – Chapter 5.20
- City of Palo Alto Municipal Code – Chapter 5.24
- City of Palo Alto Municipal Code – Chapter 5.30
- City of Palo Alto Municipal Code – Chapter 5.35
- City of Palo Alto Municipal Code – Chapter 16.14

Scenario 1

The existing Comprehensive Plan includes policies and programs that promote recycling and conservation. Under Scenario 1, these policies would remain in place and would ensure adequate waste collection and disposal facilities for the residents and workers of Palo Alto and minimize solid waste generation for disposal. Therefore, the impact would be *less than significant*.

Significance before Mitigation: Scenario 1 would retain currently Comp Plan policies that would promote recycling and conservation and minimize solid waste generation. Therefore, the impact would be less than significant.

Scenarios 2, 3, and 4

The existing Comprehensive Plan includes policies and programs that promote recycling and conservation would need to remain in the proposed Plan to ensure adequate waste collection and disposal facilities for the residents and workers of Palo Alto and to minimize solid waste generation for disposal.

The removal of any one of these policies could cause the proposed Plan to fall out of compliance with local, State, or federal laws. Because the proposed Plan is still in process and has not yet been decided which

UTILITIES AND SERVICE SYSTEMS

policies will be retained as part of the proposed Plan, the impact is *potentially significant* under Scenarios 2, 3, and 4.

Significance before Mitigation: Because the proposed Plan is still in process and it has not yet been decided which policies will be included in the proposed Plan, this impact would be potentially significant under Scenarios 2, 3, and 4, requiring mitigation.

Mitigation Measures

Mitigation Measure UTIL-15: The following policies and programs, or equally effective language, shall be included in the proposed Plan to ensure that future development under Scenarios 2, 3, and 4 would comply with applicable solid waste regulations:

- Policy: Reduce the amount of solid waste disposed in the City’s landfill by reducing the amount of waste generated and promoting the cost-effective reuse of materials that would otherwise be placed in a landfill.
- Policy: Reduce solid waste generation through salvage and reuse of building materials, including architecturally and historically significant materials.
- Policy: Encourage the use of reusable, returnable, recyclable, and repairable goods through incentives, educational displays and activities, and through City purchasing policies and practices.
- Policy: Increase program participation to maximize recycling and composting from all residents, businesses, and institutions, and consider ways to expand recycling and composting programs.

Significance after Mitigation: Less than Significant.

4.14.4.4 CUMULATIVE IMPACTS

UTIL-16	The proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to solid waste. (Less than Significant– All Four Scenarios)
----------------	---

Summary: All four scenarios would result in nominally different levels of solid waste generation. However, as described below, all four scenarios would be served by adequate landfill capacity. In addition, all potential regulatory impacts would be the same for all scenarios. As such, the scenarios are not distinguished with respect to the significance of potential impacts regarding regulatory compliance and landfill capacity. As described below, the cumulative impacts associated with landfill capacity and solid waste related regulatory compliance would be less than significant for all planning scenarios.

UTILITIES AND SERVICE SYSTEMS

As discussed in Chapter 4, this EIR takes into account growth projected by the proposed Plan within Palo Alto and its SOI, in combination with impacts from projected growth in the region served by the landfills that serve Palo Alto and its SOI.

Development allowed by the proposed Plan would increase the quantity of solid waste for disposal by as much as 15,953 tons per year (under Scenario 4), or as little as 10,851 tons per year (under Scenario 2). The permitted daily throughput capacity and permitted maximum lifetime capacity of the landfills that can and do serve the City and SOI can accommodate solid waste generation rates for baseline (2014) plus incremental increases at buildout (2030) under all four planning scenarios.

Although AB 939 established a goal for all California cities to provide at least 15 years of ongoing landfill capacity, growth from other cities in the region may exceed that which was taken into account when calculating landfill capacity. Also, because two of the three landfill facilities that take approximately 93 percent of the City's solid waste (in 2013) are expected to close by 2023, Palo Alto or other jurisdictions that use the same facilities may eventually experience insufficient future capacity at a specific landfill to accommodate existing or increased population and employment levels.

However, one of the three main landfills serving the city is estimated to close on or after 2107 (Monterey Peninsula Landfill). In addition, there are 17 landfills that received waste from Palo Alto in 2014. Therefore, if one or more of the main three landfills serving Palo Alto in 2014 were unavailable in the future, it is likely solid waste volume generated in the city or SOI could be increased at one or more of the other landfills that already serve the city and SOI.

Therefore, with continued compliance with the applicable regulations listed below the solid waste related impact of the proposed Plan, in combination with past, present, and reasonably foreseeable development, would be *less than significant*.

Applicable Regulations:

- California Integrated Waste Management Act
- Global Warming Solutions Act of 2006, *Scoping Plan*
- CALGreen Building Code
- *City of Palo Alto Zero Waste Plan*
- City of Palo Alto Municipal Code – Chapter 17.04
- City of Palo Alto Municipal Code – Chapter 520
- City of Palo Alto Municipal Code – Chapter 524
- City of Palo Alto Municipal Code – Chapter 530
- City of Palo Alto Municipal Code – Chapter 535
- City of Palo Alto Municipal Code – Chapter 16.14

UTILITIES AND SERVICE SYSTEMS

Significance before Mitigation: Cumulative projects would be subject to federal, State, regional, and local regulations and procedures associated with landfill capacity and solid waste. Therefore, none of the scenarios would contribute to cumulative impacts and the impact would be less than significant.

4.14.5 ENERGY SUPPLY AND EFFICIENCY

This section describes the regulatory framework, existing conditions, and impacts related to electric and natural gas services and infrastructure. The City of Palo Alto provides electricity, natural gas, and fiber optic service.

4.14.5.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal and Regional Regulations

Energy Policy Act of 2005

The Energy Policy Act of 2005 gave the Federal Energy Regulatory Commission (FERC) authority to oversee the reliability of the bulk power system, commonly referred to as the bulk electric system or the power grid, including electric utilities. The North American Electric Reliability Corporation (NERC) has been certified by FERC as the nation's Electric Reliability Organization (ERO). NERC oversees eight regional reliability entities and encompasses all of the interconnected power systems of the contiguous United States, Canada, and a portion of Baja California in Mexico. The Western Electricity Coordinating Council (WECC) is the largest of the eight regional reliability organizations, and extends from Canada to Mexico and includes the provinces of Alberta and British Columbia; the northern portion of Baja, California; Mexico; and all or portions of the 14 western states in-between, including California. Prior to being the national ERO, NERC's guidelines for power system operation and accreditation were referred to as policies, for which compliance was strongly encouraged yet ultimately voluntary. NERC has worked with all stakeholders over the past several years to revise its policies into standards, and now has authority to enforce those standards on power system entities operating in the United States, as well as several provinces in Canada, by way of significant financial penalties for noncompliance.

Natural Gas Pipeline Safety Act of 1968

The Natural Gas Pipeline Safety Act of 1968 authorizes the Department of Transportation (DOT) to regulate pipeline transportation of flammable, toxic, or corrosive natural gas and other gases as well as the transportation and storage of liquefied natural gas. The Pipeline and Hazardous Materials Safety Administration (PHMSA) within DOT develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6 million mile pipeline transportation system. DOT and PHMSA's regulations governing natural gas transmission pipelines, facility operations, employee activities,

UTILITIES AND SERVICE SYSTEMS

and safety are found at in the Code of Federal Regulations (CFR) at 49 CFR Part 40, 40 CFR Part 190, 40 CFR Part 191, 49 CFR Part 192, 49 CFR Part 193 and 49 CFR Part 199.

Federal Power Act

Under the Federal Power Act (FPA), FERC regulates the nation's non-federal hydropower resources. Pursuant to the FPA, hydropower projects must be licensed, or granted an exemption from licensing by FERC. FERC issues three types of development authorizations: conduit exemptions, 10-megawatt (MW) exemptions, and licenses. On August 9, 2013, President Obama signed into law the “Hydropower Regulatory Efficiency Act of 2013.” The act promotes small hydroelectric and conduit hydropower projects, authorizes FERC to extend preliminary permit periods, and promotes hydropower development at non-powered dams and closed-loop pumped storage projects.

State Laws and Regulations

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32, the Global Warming Solutions Act. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions.

CARB 2008 Scoping Plan

The final *Scoping Plan* was adopted by CARB on December 11, 2008. AB 32 directed CARB to adopt discrete early action measures to reduce GHG emissions and outline additional reduction measures to meet the 2020 target. In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MT of CO₂e per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

The *2008 Scoping Plan* identified that GHG emissions in California are anticipated to be approximately 596 MMTCO₂e in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 MMTCO₂e (471 million tons) for the state. The 2020 target requires a total emissions reduction of 169 MMTCO₂e, 28.5 percent from the projected emissions of the business-as-usual (BAU) scenario for the year 2020 (i.e., 28.5 percent of 596 MMTCO₂e) (CARB 2008).⁹²

⁹² CARB defines BAU in the *Scoping Plan* as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB’s definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

UTILITIES AND SERVICE SYSTEMS

Key elements of CARB's GHG reduction plan that may be applicable to the proposed Plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards (adopted and cycle updates in progress).
- Achieving a mix of the State's energy generation in which 33 percent is from renewable sources (anticipated by 2020).
- A California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources (adopted 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted).
- Adopting and implementing measures pursuant to State laws and policies, including California's clean car standards (amendments to the Pavley Standards adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (LCFS) (adopted 2009).
- Creating target fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation (in progress).

California Public Utilities Commission

The California Public Utilities Commission (CPUC) was established by Constitutional Amendment as the California Railroad Commission in 1911, and in 1912 the Legislature passed the Public Utilities Act. This Act expanded the CPUC's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies. In 1946, the Commission was renamed the California Public Utilities Commission. The CPUC regulates privately-owned telecommunications in Palo Alto; however, because Palo Alto owns and operates its own utilities, electric, natural gas, and water are not regulated under the CPUC.

California Renewable Portfolio Standard

Under SB X1-2, signed into law on April 2011, the Renewable Portfolio Standard (RPS) applies to all electricity retailers in California including all publicly-owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the RPS goals of 20 percent of retail sales from eligible renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by 2020. SB 350, signed on October 7, 2015, made a number of changes to California's RPS. Most notably, SB 350 extended the timeline and requirements under the RPS to 2030, when 50 percent of each utility's retail sales must come from renewable energy.

UTILITIES AND SERVICE SYSTEMS

California Building Standards Code

Title 24, Part 6, Energy, of the California Code of Regulations, and Part 11, CALGreen, regulate energy conservation standards and green building, respectively. Each of these parts is described below.

Energy Code (Title 24, Part 6)

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and most recently revised in 2008 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24, Part 6 (Energy Code) requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the California Energy Commission (CEC) adopted the 2013 Building Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (non-residential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

The CEC has a goal of achieving Zero Net Energy (ZNE) building standards by 2020 for residential buildings and by 2030 for commercial buildings.

CALGreen Code (Title 24, Part 11)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the 2010 California Building Standards Code (Title 24, California Code of Regulations), and has since been updated as discussed below. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of the updated CALGreen became effective January 1, 2014 as part of the 2013 California Building Standards Code. Additional requirements may be adopted by local jurisdictions in recommended "tiers," or per local preference. Local jurisdictions may use a local Green Building Ordinance that is equal or more stringent than CALGreen. The building efficiency standards are enforced through the local building permit process.

The purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories:

- Planning and design.
- Energy efficiency.
- Water efficiency and conservation.

UTILITIES AND SERVICE SYSTEMS

- Material conservation and resource efficiency.
- Environmental quality.

California 2012 Appliance Efficiency Regulations

The 2012 Appliance Efficiency Regulations (Title 20, California Code of Regulations, Sections 1601 through 1608) were adopted by the CEC on January 12, 2012, and went into effect on February 1, 2013. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. Though these regulations are now often viewed as “business-as-usual,” they exceed the standards imposed by all other States and they reduce GHG emissions by reducing energy demand.

California’s Energy Storage Law

California’s energy storage law, (AB 2514) (Chapter 469, Statutes of 2010) requires the governing board of each publicly-owned utility to “determine appropriate targets, if any, for the utility to procure viable and cost-effective energy storage systems...” (California Public Utilities Code Section 2836(b)(1)). In addition to requiring publically owned utilities to evaluate the feasibility of energy storage targets, AB 2514 requires that “...[a]ll procurement of energy storage systems” by a publicly owned utilities “...shall be cost-effective” (California Public Utilities Code Section 2836.6). The Palo Alto City Council in February 2014 made a determination that energy storage systems in Palo Alto are not cost effective solutions and therefore no targets were established. The merits of such technologies will be re-evaluated in 2017.

California Environmental Quality Act

In order to ensure that energy implications are considered in project decisions, CEQA Guidelines, Appendix F, requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. However, no specific thresholds of significance for potential energy impacts are suggested in the CEQA Guidelines.

Pursuant to CEQA Guidelines Section 5126.4(a) and Appendix F (Energy Conservation), and the City of Palo Alto CEQA significance criteria, EIRs must include a discussion of the potential energy impacts of proposed projects with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Impacts are assessed based on an evaluation of consumption of energy by the project. Development generally results in the consumption of energy in three forms: 1) the fuel energy consumed by construction vehicles; 2) bound energy in construction materials such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as milled lumber and glass; and 3) operational use of energy by future businesses for transportation, equipment operation, and cooling of buildings. Construction materials and the operational use of energy should be addressed.

UTILITIES AND SERVICE SYSTEMS

California's Energy Efficiency Regulations

State law (SB 1037, 2005) requires each local POU, in procuring energy, to first acquire all available energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible. SB 1037 also requires each local POU to report annually to its customers and to the CEC its investment on energy efficiency and demand reduction programs. AB 2021 (2006) further requires that a POU, on or before June 1, 2007, and every three years thereafter, identify all potentially achievable cost-effective electricity efficiency savings and establish annual targets for energy efficiency savings and demand reduction over 10 years. A local POU shall report annually to its customers and the CEC on its energy efficiency investments, programs, expenditures, cost-effectiveness, and results. POU's are also required to conduct an independent evaluation that measures and verifies the energy efficiency savings and reduction in energy demand achieved by its energy efficiency programs and demand reduction programs.

POUs are not regulated by the CPUC but their boards are charged with establishing procurement requirements based on the following interim RPS goals: 40 percent of retail sales by December 31, 2024; 45 percent of retail sales by December 31, 2027; 50 percent of retail sales by December 31, 2030. SB 350 assigns the California Energy Commission (CEC) the following regulatory roles: 1) Adopt regulations specifying procedures for enforcement of the RPS for POU's; 2) Certify and verify eligible renewable energy resources procured by POU's and to monitor their compliance with the RPS; and 3) Refer the compliance failure of a POU to the California Air Resources Board, which may impose penalties.

California Solar Initiative

The California State Legislature enacted SB 1 in 2006 to encourage the installation of 3,000 megawatts (MW) of photovoltaic solar energy by the year 2017. SB 1 requires all publicly owned utilities to adopt, finance, and implement a solar initiative program for the purpose of investing in and encourage the increased installation of residential and commercial solar energy systems. The CPAU share of the State goal is 6.5 MW and is expected to be reached in year 2016.

California Solar Water Heating and Efficiency Act

The Solar Water Heating and Efficiency Act (2007) requires the governing body of each publicly owned utility providing gas service to retail end-use gas customers to adopt, implement, and finance a solar water heating system incentive program. CPAU has such a program but the number of participants has been well below expectation since the systems are not cost-effective for customers.

California Energy Benchmarking and Disclosure

AB 1103 (2007) requires that electric and gas utilities maintain records of the energy consumption data of all non-residential buildings to which they provide service and that by January 1, 2009, upon authorization of a non-residential building owner or operator, an electric or gas utility shall upload all of the energy consumption data for the specified building to the EPA Energy Star Portfolio Manager in a manner that

UTILITIES AND SERVICE SYSTEMS

preserves the confidentiality of the customer. This statute further requires a non-residential building owner or operator disclose Energy Star Portfolio Manager benchmarking data and ratings, for the most recent 12-month period, to a prospective buyer, lessee, or lender. Enforcement of the latter requirement began on January 1, 2014.

On October 8, 2015, the Governor signed Assembly Bill 802 (AB 802) which would revise and recast the above provisions. The new law directs the Energy Commission to establish a statewide energy benchmarking and disclosure program, and enhances the Commission's existing authority to collect data from utilities and other entities for the purposes of energy forecasting, planning, and program design. Among the specific provisions, AB 802 would require utilities to maintain records of the energy usage data of all buildings to which they provide service for at least the most recent 12 complete months. Beginning no later than January 1, 2017, the bill would require each utility, upon the request and the written authorization or secure electronic authorization of the owner, owner's agent, or operator of a covered building, as defined, to deliver or provide aggregated energy usage data for a covered building to the owner, owner's agent, operator, or to the owner's account in the ENERGY STAR Portfolio Manager, subject to specified requirements. The bill would also authorize the commission to specify additional information to be delivered by utilities for certain purposes.

California Energy Efficiency in Existing Buildings

AB 758 (2009) requires the CEC, in collaboration with the CPUC and stakeholders, to develop a comprehensive program to achieve greater energy savings in the State's existing buildings.

Local Laws, Regulations, Plans, and Programs

Electrification Plan

Council approved Palo Alto's electrification work plan⁹³ to achieve steep reduction in GHG emissions by shifting gasoline-using vehicles to electric vehicles and natural gas-using appliances to electric appliances since the electric supplies are carbon neutral. The plan has the potential to reduce natural gas loads and increase electrical loads in the 2030 and 2050 timelines.

Carbon Neutral Electric Resource Plan

In March 2013, the Palo Alto City Council adopted the *Carbon Neutral Electric Resource Plan* (Carbon Neutral Plan), committing the City to using only using carbon neutral electric resources starting in 2013. The Plan effectively eliminates all GHG emissions from the City's electric supply portfolio.

⁹³ <https://www.cityofpaloalto.org/civicax/filebank/documents/45640>.

UTILITIES AND SERVICE SYSTEMS

Renewable Portfolio Standard

The Palo Alto City Council has adopted a RPS requiring that at least 33 percent of the City's retail electric sales be supplied by eligible renewable energy resources by 2015, providing that goal can be reached without causing rates to increase by more than a half a cent per kilowatt-hour (kWh).

Long Term Electricity Acquisition Plan

The *Long-term Electric Acquisition Plan* (LEAP) contains objectives, strategies and an implementation plan associated with planning and managing the City's electric supply portfolio and transmission assets. In March 2007, the City Council adopted the latest version of LEAP via Resolution No. 9152 (LEAP Staff Report). Subsequently, in April 2012, LEAP was modified via Resolution No. 9241 to include revisions to the City's RPS. Local Solar Plan

In 2014, Council adopted the Local Solar Plan⁹⁴ with the goal of increasing the share of local solar energy supplies from 0.7 percent in 2013 to four percent by 2023. Utilities will be working with the Development Services Department to evaluate the merits of mandating solar PV system on all new residential construction starting in 2017.

City of Palo Alto Municipal Code

The City of Palo Alto Municipal Code contains all ordinances for the City.

Chapter 16.14, Green Building Standards Code Adopted and Amended

On April 20, 2015, the City Council adopted an ordinance⁹⁵ repealing and restating Municipal Code Chapter 16.14 to adopt and amend the 2013 CALGreen. Chapter 16.14 of the City's Municipal Code describes CALGreen, with indications of addition or amendments to the State standards. The Green Building Ordinance for the City of Palo Alto generally provides minimum Green Building Requirements for new construction and renovation and additions. Both categories are categorized into different types of development, residential and non-residential, including mixed-use developments requirements. The technical implications of the April 20, 2015 ordinance includes more stringent requirements regarding CALGreen Residential Tier 1 and Tier 2 standards for new and remodel residential projects in lieu of the prior Build it Green framework.

Chapter 16.17, California Energy Code Adopted and Amended

On April 20, 2015, the City Council adopted an ordinance repealing Municipal Code Chapters 16.17 and 16.18 and restating Chapter 16.17 to adopt and amend the 2013 California Energy Code. The technical

⁹⁴ <https://www.cityofpaloalto.org/civicax/filebank/documents/39981>.

⁹⁵ City of Palo Alto, City Council Staff Report (#5667), meeting date 4/20/15, <http://www.cityofpaloalto.org/civicax/filebank/documents/46802>.

UTILITIES AND SERVICE SYSTEMS

implications include more stringent requirements in the following areas: 1) a new energy “reach code” requiring building design to exceed the minimum State energy code requirements by fifteen percent (15 percent); and 2) solar-ready infrastructure for new residential buildings.

Chapter 12.20, Utility Rules and Regulations

Chapter 12.20 authorizes the Palo Alto City Council to adopt rules and regulations governing utility services other than communications services in the city, and the fees and charges for these services. Every person supplied with utility services by the City is considered to have expressed consent to be bound by these rules and regulations. It is unlawful for any person to disobey or fail to observe any such rule or regulation.

Existing Conditions

The CPAU purchases electric power from hydroelectric resources, including those managed by the Western Area Power Administration (WAPA) and the Calaveras Hydroelectric Project, owned and operated by the Northern California Power Agency (NCPA). Power from these hydroelectric suppliers is supplemented with energy from other renewable suppliers and supplies from the market in order to meet the customer demand. Electricity demand within Palo Alto fluctuates throughout the year, depending on the season.

The CPAU serves 29,500 electric customers over an area of approximately 26 square miles. The City’s maximum demand for electricity in FY 2013 was 185 MW with a total consumption of electricity of 970 million kWh. The City’s Electric Fund pays for operations and maintenance of the electric system and almost all of the electric power is purchased from outside the City, with the exception of a 4.8 MW back-up generating facility and close to 550 local solar photovoltaic installations that meets 0.7 percent of the City’s electricity needs.

CPAU customers can get rebates and installation assistance from the City’s solar energy incentive program, PV Partners.⁹⁶ Through the program, the CPAU encourages high quality photovoltaic installations (solar electric) on Palo Alto homes and businesses in support of the statewide Million Solar Roofs Initiative. These customer-side generation systems are not included in the utility’s RPS supply requirements. PV Partners provides rebates based on the system size, measured in watts of newly installed photovoltaic systems. The funds allocated for these rebates and expected to be exhausted by mid-2016. The City’s *Local Solar Plan* will form the basis for promoting solar in the city in the future.

Electric demand has generally been very stable in the city in the past decade. However, a significant (15 percent) decrease in demand was experienced between 1999 and 2003 after the high level of effort that was expended to reduce loads during the energy crisis, during which time energy was priced very high.

⁹⁶ City of Palo Alto, Photovoltaic Partners Program website, <http://www.cityofpaloalto.org/gov/depts/utl/business/sustainability/partners.asp>, accessed January 19, 2016.

UTILITIES AND SERVICE SYSTEMS

Energy use decreased from a peak of 1,124 gigawatt hours (GWh) in Fiscal Year (FY) 1999 to 956 GWh in FY 2003. Energy use then increased at an average rate of 1.0 percent per year each year until FY 2008. Subsequently, annual usage decreased due a combination of factors including the economic slowdown and increased energy efficiency (EE). In FY 2015 and beyond, demand is expected to decline at an average rate of 0.2 percent per year until FY 2018.⁹⁷ The long-term demand for electricity in Palo Alto is highly dependent on the rate of electrifying transportation and natural gas appliances, to meet GHG reduction goals for 2030 and 2050.

Table 4.14-7 below presents electricity purchased in Palo Alto for years 2011 through 2014, by sector. This energy report was compiled by the City.

TABLE 4.14-7 ENERGY USE FOR PALO ALTO – PURCHASED ELECTRICITY (CITY ONLY)

2011-2013 Average	2011 Annual kWh	2012 Annual kWh	2013 Annual kWh	2014 Annual kWh	2011-2014 Average, kWh
Single Family	121,871,934	118,456,458	118,456,458	113,219,501	118,041,466
Multi-Family	38,667,524	39,386,048	39,395,143	36,308,103	38,439,205
Commercial	420,155,466	435,616,568	461,915,062	479,054,920	449,185,504
Industrial	251,541,035	227,281,310	219,218,161	210,241,296	227,070,451
Public Facilities	55,923,659	54,657,391	55,182,913	56,218,434	55,495,599
City Facilities	29,331,131	29,040,538	28,809,795	29,713,565	29,223,757
Commercial Multi-Family	32,025,863	30,420,776	30,257,401	28,629,293	30,333,333
Total	949,516,122	935,020,602	953,234,933	953,385,112	947,789,315

Source: Keniston, Eric. Resource Planner, City of Palo Alto. Personal communication with PlaceWorks staff, April 2014 and April 2015.

In March 2013, the City Council of Palo Alto voted to use only carbon neutral sources of electricity in the future, starting in calendar year 2013. The City will focus on energy efficiency and increasing the number of contracts for energy from solar, wind, and landfill gas. To implement the adopted *Carbon Neutral Plan*, the City will purchase renewable energy under long-term contracts for about half of the City’s electric supply needs and rely on existing carbon-free hydroelectric resources for the other half of the City’s needs. Until those long-term contracts are in place, the plan achieves carbon neutrality by purchasing short-term renewable resources and/or renewable energy certificates (RECs) to supplement existing and committed long-term renewable and hydroelectric resources. The *Carbon Neutral Plan* is designed to be transparent, credible, sustainable, inspirational, and repeatable by other communities. It is expected to cost less than \$3 a year on the average resident's electric bill.

⁹⁷ City of Palo Alto, Finance Committee Staff Report, April 16, 2013, <https://www.cityofpaloalto.org/civicax/filebank/documents/33921> accessed February 4, 2015.

UTILITIES AND SERVICE SYSTEMS

The City's adopted RPS requires that at least 33 percent of the City's retail electric sales be supplied by eligible renewable energy resources by 2015, provided that goal can be reached without causing rates to increase by more than half a cent per kWh. The City continues to ramp up its purchases of renewable energy (and, through efficiency measures, ratchet down its total consumption), so that in 2012 about 21 percent of the City's electricity sales were supplied by renewable power. Contracts are in place for projects that are expected to provide renewable supplies for about 35 percent of total sales by 2015 and 57 percent of total sales by 2017. The City is pursuing additional renewable energy supplies to meet its RPS needs for future years (when some older renewable power contracts begin to expire), while also pursuing increased energy efficiency to reduce or eliminate increases in electricity demand.⁹⁸

In the near term (from 2013 through 2016), the City will purchase short-term renewable resources and/or renewable energy certificates (RECs) to supplement existing and committed long-term renewable and hydroelectric resources, which account for 65 percent to 83 percent of the portfolio. Beyond 2016, long-term renewable resources will provide about a 50 percent RPS level within the existing half cent per kWh cap on rate increases. Since about 50 percent of the electric supply portfolio is already sourced from carbon-free hydroelectric resources, the additional cost of achieving carbon neutrality between 2017 and 2020 is very small.⁹⁹

Stanford University (within the SOI) purchases electricity from the electric power market for some of its electric power needs. Power is delivered to the campus through a connection to the local public utility, PG&E.¹⁰⁰ Stanford University's Power Systems group within Utilities Services is responsible for the design, operation, maintenance and repair of all Stanford's electrical energy infrastructure, as well as overseeing the management of the Central Energy Facility currently operated by Cardinal COGEN, a subsidiary of General Electric. Stanford's Central Energy Facility produces electrical and thermal energy for the main Stanford campus. Steam is generated for heating buildings, and chilled water is generated for cooling buildings. Electrical and thermal utilities are delivered through distribution systems operated by the Stanford Utilities Services Department.

A natural gas distribution system has been owned and operated by the City since 1917. As of 2015-16, the system had 24,860 meters (customers), 211 miles of gas mains (two to 12 inches), and 17,439 service lines (half to six inches).

The system receives natural gas from PG&E's regional transmission system through four gate stations. PG&E has three main transmission pipelines that traverse Palo Alto. They are referenced as #101, #109, and #132. Running roughly 55 miles long and stretching from Milpitas to South San Francisco, pipeline #132 is only one of many transmission pipelines involved in PG&E's current statewide testing. The Palo Alto portion

⁹⁸ City of Palo Alto Renewable Portfolio Standard, <http://www.cityofpaloalto.org/gov/depts/utl/residents/resources/pcm/default.asp> accessed on April 3, 2014.

⁹⁹ City of Palo Alto Utilities Carbon Neutral Plan, http://www.cityofpaloalto.org/gov/depts/utl/residents/resources/pcm/carbon_neutral_portfolio.asp, accessed February 4, 2015.

¹⁰⁰ Stanford, Sustainability & Energy Management, https://lbre.stanford.edu/sem/high_voltage, accessed October 26, 2015.

UTILITIES AND SERVICE SYSTEMS

of PG&E's line #109, which also runs along Middlefield Road from Mountain View but then turns up East Charleston/Arastradero Road, continuing north along the Foothill Expressway, has had about two thirds of its length replaced in recent years. PG&E's line #101 runs roughly parallel to US 101 and all of the Palo Alto portions of this pipeline have been replaced since the requirement for hydrostatic testing was in place, and there are validated records of passing this test. In order to perform ongoing corrosion tests, PG&E excavated around a portion of this pipeline (near Embarcadero Road and East Bayshore Road) during summer 2012.

As part of the City's Gas Main Replacement Project, typically about six miles of mains and 600 service lines are replaced annually. Since 1992, 50 percent of the gas system pipe has been replaced. As part of this capital improvement program (CIP), facilities associated with leaks were prioritized. During replacement a new parallel system is installed and all system components are replaced, with minimal disruption of gas service.

The City's annual natural gas load is about three million Btu (3 MMBtu; or about 30 million therms)¹⁰¹ and is served with natural gas purchased in the short-term markets. Objectives and strategies for managing the gas supply portfolio are detailed in the *Gas Utility Long-term Plan (GULP)*¹⁰² which was approved by City Council on April 23, 2012 (Staff Report 2552 – Resolution 9244). A key objective of the GULP is energy efficiency by ensuring the “deployment of all feasible, reliable, cost-effective efficiency measures.”

The City has compiled natural gas use for Palo Alto and these data are presented below in Table 4.14-8.

Energy Efficiency Strategies and Goals

City Council approved CPAU's first *Ten-Year Energy Efficiency Portfolio Plan* in April 2007, which included annual electric and gas efficiency targets between 2008 and 2017, with a 10-year cumulative savings target of 3.5 percent of the forecasted energy use. As mandated by California law, the electric efficiency targets were updated in 2010, with the 10-year cumulative savings goal doubling to 7.2 percent between 2011 and 2020. Since then, increasingly stringent statewide building codes and appliance standards have resulted in substantial energy savings (e.g., as of January 1, 2013, incandescent bulbs between 40W and 100W can no longer be sold). However, these “codes and standards” energy savings cannot be counted toward meeting CPAU's EE program goals. An updated set of Ten-Year Electric Efficiency Goals, adopted by City Council in December 2012, revised the 10-year cumulative electric efficiency savings to 4.8 percent between 2014 and 2023.

¹⁰¹ The therm (symbol thm) is a unit of heat energy equal to 100,000 British thermal units (BTU). It is approximately the energy equivalent of burning 100 cubic feet (often referred to as one CCF) of natural gas. Since natural gas meters measure volume and not energy content, a therm factor is used by (Natural) gas companies to convert the volume of gas used to its heat equivalent, and thus calculate the actual energy use. The therm factor is usually in the units therms/CCF. It will vary with the mix of hydrocarbons in the natural gas. Natural gas with a higher than average concentration of ethane, propane, or butane will have a higher therm factor. Impurities, such as carbon dioxide or nitrogen, lower the therm factor.

¹⁰² Palo Alto's Gas Utility Long-term Plan Objectives, Strategies and Implementation Plan, <http://www.cityofpaloalto.org/civicax/filebank/documents/42778>, accessed October 26, 2015.

UTILITIES AND SERVICE SYSTEMS

TABLE 4.14-8 ENERGY USE FOR PALO ALTO – NATURAL GAS (CITY ONLY)

2011-2013 Average	2011 Annual Therms	2012 Annual Therms	2013 Annual Therms	2014 Annual Therms	2011-2014 Average, Therms
Single-Family	10,287,368	9,510,992	9,815,382	7,916,548	9,382,573
Multi-Family	1,450,423	1,431,732	1,471,949	1,207,354	1,390,365
Commercial	7,988,655	8,040,302	8,580,855	8,504,190	8,278,501
Industrial	5,079,522	4,453,603	3,995,267	3,606,115	4,283,627
Public Facilities	2,402,418	2,243,997	2,258,653	2,047,591	2,238,165
City Facilities	996,273	827,300	852,108	881,204	889,221
Commercial Multi-Family	2,691,001	2,635,593	2,550,396	2,259,322	2,534,078
Total	30,895,660	29,143,519	29,524,610	26,422,324	28,996,528

Source: City of Palo Alto, Eric Keniston, April 2014 and April 2015. See also Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, Energy sheet, of this EIR.

In parallel to the development of 10-year electric goals, City Council adopted CPAU's first set of gas efficiency targets in 2007 to reduce gas consumption by 3.5 percent between 2008 and 2017. In 2010, Council increased the gas efficiency targets to reduce use by 5.5 percent between 2011 and 2020. Similar to the electric side, gas efficiency potential has been reduced due to recent changes to California's appliance standards and building codes. The Ten-Year Gas Efficiency Goals were last updated in December 2012, with a cumulative gas efficiency target to reduce gas use by 2.85 percent between 2014 and 2023.

CPAU offers a wide range of rebate programs administered by in-house staff as well as third-party vendors to achieve energy savings in both the residential and commercial sectors. In addition to customer rebates, CPAU also runs a variety of customer outreach campaigns and educational workshops to promote conservation and efficiency programs. Ongoing activities include utility bill inserts, Home Energy Reports, email newsletters, and training workshops.

In FY 2014, CPAU achieved electric savings of 0.86 percent of load through its customer efficiency programs, exceeding the annual goal. Cumulative electric efficiency savings since 2006 is about 5.7 percent of the FY 2014 electric usage. Non-residential efficiency program savings represent about 80 percent of CPAU's total electric efficiency savings. Funding for electric efficiency programs came primarily from the mandated Public Benefit (PB) Charge, which is set at 2.85 percent of the customer retail rate. Supplemental funding for efficiency programs comes from supply funds.

Gas efficiency savings in FY 2013 represented 1.20 percent of load, which is more than double the year's goal (0.50 percent). Cumulative gas efficiency savings since 2006 is about 2.8 percent of the FY 2014 gas usage. During FY 2014, gas efficiency savings by non-residential customers represent about 41 percent of

UTILITIES AND SERVICE SYSTEMS

CPAU's total gas savings. The Home Energy Reports, targeted at residential customers, delivered about 50 percent of CPAU's total gas savings. Gas efficiency programs are funded primarily through the Gas Public Benefit Charge, which is set at 1 percent of the gas utility's revenue.

Proposed Waste to Energy Project

City Council approved the RWQCP LRFP in July 2012. Part of the plan was to replace the plant's aging sewage sludge incinerators. At the direction of City Council in May 2014, staff began pursuing installation of an estimated \$14 million sludge dewatering and truck off-haul facility that will allow retirement of the incinerators and disposal of unclassified sludge—for a time—at disposal site(s). This facility will likely be at the nearby East Bay Municipal Utility District wastewater plant or a windrow composting facility in the Central Valley. An estimated \$57 million second component, consisting of anaerobic digestion, will allow conversion of the biosolids into electric energy with final disposal of the treated sludge as a land applied fertilizer. The City is developing CEQA and design documents, financing plans, loan applications, and partner agreement modifications. Both facilities will require partner agency approval for payments of related loan debt.

Fiber Optics Utility

The City of Palo Alto operates its own fiber optic utility. CPAU has the day-to-day responsibility for operating, maintaining, and marketing the dark fiber optic backbone system ("fiber system"). The 41-mile fiber system was originally conceived by the City in the mid-1990s. The City's initial telecommunications strategy was to build a dark fiber ring around Palo Alto that would be "capable of supporting multiple network developers and/or service providers with significant growth potential."

In 1996, the Electric Enterprise Fund provided the fiber project with a 20-year, \$2.0 million loan at zero percent interest to construct the system and fund operating expenses. At the end of Fiscal Year 2008, the fiber optics business completed the loan repayment to the Electric Enterprise Fund for all capital and operating expenses from the beginning of the project. A separate Fiber Optics Enterprise Fund, capable of maintaining its own capital and operating budgets and financial operating reserve, was also established. A Fiber Optics Enterprise Fund Rate Stabilization Reserve was established in Fiscal Year 2009, with guidelines for minimum and maximum reserve levels.

In 2000, CPAU began to license "dark fiber" for commercial purposes.¹⁰³ The fiber system has high market share and brand awareness among commercial enterprises needing the quantity and quality of bandwidth

¹⁰³ Dark fiber optics service is characterized as fiber optic cabling, splice points, service connections, and other infrastructure providing customers with high-capacity bandwidth to transport large quantities of data. CPAU does not provide its commercial dark fiber customers with the transmitters and receivers required to "light" the dark fiber, or provide the required bandwidth to transport data. By connecting to the City's fiber system, a customer gains access to their Internet Service Provider (ISP) of choice. Many customers gain access to the Internet through the Palo Alto Internet Exchange ("PAIX," now owned by Equinix). PAIX is a carrier-neutral collocation facility and hosts over seventy (70) ISPs at their facility located in downtown Palo Alto. A dark fiber customer can interconnect communications systems or computer networks across multiple Palo Alto locations and can also connect directly to their local and/or long distance carrier(s) of choice with a full

UTILITIES AND SERVICE SYSTEMS

provided by direct fiber optic connections. The fiber backbone was routed to pass and provide access to key City facilities and offices such as IT Infrastructure Services, electric utility substations, traffic signals, libraries, and the RWQCP. The majority of the city's business parks (e.g., Stanford Research Park) and commercial properties are also passed by the fiber backbone. Based on executing a "Dark Optical Fiber Backbone License Agreement," new customers pay a one-time construction fee to connect to the fiber system and then pay a monthly recurring charge to license the use of the dark fiber.

As of the end of the third quarter of Fiscal Year 2014, the total number of commercial dark fiber customers was 94. The total number of active dark fiber service connections serving commercial customers and the City was 238 (some customers have multiple connections). Commercial customers generate 81 percent of dark fiber license revenues. City connections account for 19 percent of the license revenues. The commercial dark fiber customer base is comprised of businesses, value-added "resellers"¹⁰⁴ and other enterprises. In March 2014, CPAU completed a project to provide dark fiber service connections to 17 schools and the Business Office of the Palo Alto Unified School District.

In Fiscal Year 2015, projected revenues from dark fiber license agreements will increase by \$0.2 million (5.2 percent), from \$4.2 million to \$4.4 million. Projected expenses will increase by \$0.5 million (25.9 percent), from \$1.9 million to \$2.4 million. Increased expenses are attributed to salaries and benefits of \$234,000, and General Fund administrative charges of \$137,000.

In Fiscal Year 2015, there is \$1.0 million available for Capital Improvement Projects (\$0.6 million from Commitment and Re-appropriation reserves and \$0.4 million from the Fiscal Year 2015 budget). In Fiscal Year 2015, projected net income will increase by \$2.0 million. Total reserves in Fiscal Year 2015 are projected to be \$19.8 million (Rate Stabilization Reserve of \$18.8 million and Emergency Plant Replacement of \$1.0 million).

New Fiber Initiatives

On March 22, 2013, the Mayor formed the City Council's "Technology and the Connected City Committee." The Committee held its first meeting on May 14, 2013. At the meeting, staff provided an overview of the history of the fiber system and previous initiatives to deploy citywide Fiber-to-the-Premise (FTTP).

On June 24, 2013, the City Council approved the Technology and the Connected City Committee's recommendations to develop a work plan to evaluate the feasibility of building a citywide high-speed broadband FTTP Network in Palo Alto and to request the City Manager to appoint a Citizen Advisory

range of communications services. Commercial dark fiber customers can also have redundant telecommunication connections for enhanced reliability.

¹⁰⁴ Resellers are telecommunication service providers licensing dark fiber capacity to deliver a variety of voice, video and data services to businesses and residences.

UTILITIES AND SERVICE SYSTEMS

Committee (CAC) to assist in the evaluation.¹⁰⁵ Responsibility for the work plan was assigned to a cross-department team under the direction of the City's Director of Information Technology/Chief Information Officer, with Information Technology and Utilities staff assigned to work on the project (1.75 FTEs).

On September 17, 2013, the Technology and the Connected City Committee reviewed staff recommendations to develop a Master Plan to build out the City's fiber system to provide FTTP and develop a complementary Wireless Network Plan with a near-term focus on Wi-Fi and a long-term consideration of other wireless technologies (CMR ID #4080).¹⁰⁶ Staff also recommended retaining a consulting firm(s) with expertise in developing plans and RFPs for government agencies contemplating building FTTP and wireless networks.

On October 28, 2013, based on a recommendation from the Technology and the Connected City Committee, the Council directed staff to proceed with: (1) developing a FTTP Master Plan and conduct a request for proposals to build out the existing dark fiber optic backbone system, and (2) developing a Wireless Network Plan with a near-term focus on Wi-Fi, and a long-term consideration of other wireless technologies.¹⁰⁷

The City Attorney has indicated that the Fiber Optics Fund Rate Stabilization Reserve can be used for fiber and wireless communication services, including developing a FTTP Master Plan, as well as a Wireless Network Plan for building and operating wireless network services. The estimated cost to develop the FTTP Master Plan is \$150,000 to \$350,000 (depending on required environmental review), and up to \$100,000 for the Wireless Network Plan. After the plans are completed, findings and recommendations will be submitted to the Council to assist the Council members with formulating a final vision and direction for the deployment of FTTP and/or wireless networks. Staff estimates it will require 12 to 18 months to complete the plans and RFPs.

On February 18, 2014, the City Manager finalized the appointment of nine Palo Alto residents to the CAC. The CAC members will meet with staff and work in an advisory capacity to provide feedback for the development of RFPs and vendor selection. The CAC will also meet and work with staff to support the evaluation of the FTTP Master Plan and Wireless Network Plan.

On February 19, 2014, Google announced it was considering the City of Palo Alto and 33 other communities nationwide as potential candidates to study for future Fiber Network deployment. Google provided the City with a "Google Fiber City Checklist" which set forth a series of extensive information requests and conditions that must be satisfied by the City by May 1, 2014. With the exception of Google's

¹⁰⁵ City of Palo Alto, City Council Staff Report #3914: Fiber-to-the-Premise Work Plan, <http://www.cityofpaloalto.org/civicax/filebank/documents/34953>, accessed October 26, 2015.

¹⁰⁶ City of Palo Alto, City Council Staff Report #4080: Master Plan to Provide Fiber-to-the-Premise and Wireless Network Plan, <http://www.cityofpaloalto.org/civicax/filebank/documents/35862>, accessed October 22, 2015.

¹⁰⁷ City of Palo Alto, City Council Staff Report #4203: Fiber-to-the-Premise and Wireless Network Plans, <http://www.cityofpaloalto.org/civicax/filebank/documents/37492>, accessed October 22, 2015.

UTILITIES AND SERVICE SYSTEMS

“Network Hut License Agreement,” all requested information was submitted to Google by the May 1, 2014 deadline. Staff completed the Network Hut License Agreement and it was approved by City Council on August 11, 2014.

Climate Change

Cities along the San Francisco Bay, such as Palo Alto, are particularly vulnerable to rising sea levels. Along the San Francisco Bay, sea levels are expected to rise up to 69 inches due to climate change.¹⁰⁸ Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. As described in the City of Palo Alto Annex to the *Santa Clara County Local Hazard Mitigation Plan*, critical facilities at risk to sea level rise include the utility control center, municipal services center, and natural gas station 4. These facilities are located along or near the shoreline and are of particular concern because they provide essential public services, and their compromise during a hazardous event could further aggravate the situation.

4.14.5.2 STANDARDS OF SIGNIFICANCE

Appendix G, Environmental Checklist Form, of the CEQA Guidelines contains standards of significance for the evaluation of a project’s impacts. Section 15064.7 of the CEQA Guidelines encourages each public agency to develop and publish its own thresholds of significance that the agency uses in evaluating the significance of environmental effects for projects in its jurisdiction. The City of Palo Alto prepared its *Environmental Criteria Used by the City of Palo Alto* in 2007. In determining which standards of significance to use for evaluating energy impacts of the proposed Plan, Appendix F, Energy Conservation, and Appendix G of the CEQA Guidelines and the City’s published environmental criteria were considered. Pursuant to CEQA Guidelines §15126.4(a) and Appendix F (Energy Conservation), EIRs must include a discussion of the potential energy impacts of proposed projects with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. Based on this consideration, the analysis in Section 4.14.4.4 uses the following standards of significance. The proposed Plan would result in a significant energy impact if it would:

- Result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities.

4.14.5.3 IMPACT DISCUSSION

The remaining subsections provide an analysis of the potential project impacts, including impacts from growth expected to occur during the life of the proposed Plan, as well as cumulative energy supply and efficiency impacts that could occur as a result of the implementation of the proposed Plan when combined

¹⁰⁸ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

UTILITIES AND SERVICE SYSTEMS

with projects outside of Palo Alto. The determination of significance for all potential impacts described below would be the same for all scenarios. As such, the scenarios are not distinguished below with respect to determination of significance of impacts.

UTIL-17 The proposed Plan would not result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities. However, without the adoption of policies in support of energy efficiency and conservation, the proposed Plan would result in a potentially significant impact, requiring mitigation. (Less than Significant– Scenario 1; Potentially Significant and Mitigable – Scenarios 2, 3, and 4)

Summary: Each of the four scenarios would result in a slightly different level of natural gas and electrical service demand. However, as described below, all four scenarios would use aggressive energy conservation and efficiency measures, would be served by adequate natural gas and electrical service, and would not require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities. Even so, because the proposed Plan development is still in process and it has not yet been decided which policies will be adopted as part of the proposed Plan, Scenarios 2, 3, and 4 would result in a potentially significant impact, requiring mitigation. Impacts would be less than significant under Scenario 1.

The proposed Plan would substantially affect energy supply and conservation if it would allow development that would result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities. New buildings and additions in California are subject to compliance with the energy efficiency standards of Title 24 of the California State Building Code. Chapter 16.17 of the Palo Alto Municipal Code was adopted and amends the 2013 California Energy Code, CCR Title 24, Part 6. The technical implications include more stringent requirements in the following areas: 1) a new energy “reach code” requiring building design to exceed the minimum State energy code requirements by 15 percent; and 2) solar-ready infrastructure for new residential buildings.

Electrical Service

Table 4.14-9 below was derived with input from the Palo Alto Utility regarding electricity demand, as illustrated in the Inputs sheet in Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, of this EIR. The table shows that buildout of the Plan under all four scenarios would result in electricity use increase ranging from 106,148,597 kWh (or (Scenario 2) to 162,135,150 kWh (Scenario 4). These electricity demand increases correspond to 10 percent (Scenario 2) and 16 percent (Scenario 4) increase at buildout (2030) over baseline (2014).

UTILITIES AND SERVICE SYSTEMS

TABLE 4.14-9 ELECTRICITY USE FOR PROPOSED PLAN – FOUR SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)
Residential Electricity (kWh)	181,244,642	202,509,510	202,509,510	207,058,439	211,826,592
Commercial + Industrial + City + Other Electricity (kWh)	835,822,875	967,376,074	920,706,602	944,787,386	967,376,074
Total Electricity (kWh)	1,017,067,516	1,169,885,584	1,123,216,113	1,151,845,825	1,179,202,666
Change from 2014 (kWh)		152,818,068	106,148,597	134,778,309	162,135,150

Notes:

1. Residential electricity provided by Palo Alto (2014). Scenarios (2030) projected based on increase in housing units. Baseline (2014) based on a four-year average of 2011 to 2014 data.

2. Commercial + Industrial provided by Palo Alto (2014). Scenarios (2030) projected based on increase in employment. Baseline (2014) based on a four-year average of 2011 to 2014 data.

Source: PlaceWorks, 2015.

Implementation of the proposed Plan at buildout (2030) would result in a long-term increase in electrical service energy demand ranging from 10 percent to 16 percent over 2014 baseline levels within the CPAU’s service territory for electrical service. The incremental increase in electrical service demand would average up to about one percent increase per year. A significant portion of this increase can be offset by anticipated electrical energy efficiency in future years.

CPAU’s first *Ten-Year Energy Efficiency Portfolio Plan* in April 2007 included annual electric and gas efficiency targets between 2008 and 2017, with a 10-year cumulative savings target of 3.5 percent of the forecasted energy use. As mandated by California law, the electric efficiency targets were updated in 2010, with the 10-year cumulative savings goal doubling to 7.2 percent between 2011 and 2020. Since then, increasingly stringent statewide building codes and appliance standards have resulted in substantial energy savings (e.g., as of January 1, 2013, incandescent bulbs between 40W to 100W can no longer be sold). However, these “codes and standards” energy savings cannot be counted toward meeting CPAU’s EE program goals. An updated set of Ten-Year Electric Efficiency Goals, adopted by City Council in December 2012, revised the 10-year cumulative electric efficiency savings to 4.8 percent between 2014 and 2023.

The EIR Study Area is predominantly located within the CPAU service territory for electrical service transmission and distribution. A key exception is that Stanford University operates its own electric power utility for the campus (within the Study Area). Forecasting and planning by the CPAU will be able to accommodate and serve the Plan’s expected net annual average increase in electrical service demand of less than one percent (after EE goals and standards and codes). Therefore, the Plan would not significantly increase electrical demands within the service territory to an extent that would require new local electrical supply facilities. Where new generation, transmission, and/or distribution infrastructure is required to serve the CPAU service territory in general, these projects would be subject to separate environmental review and would be required to comply with applicable regulations for construction projects, including construction permits/review for construction within public rights-of-way (e.g., grading permits, private development review, encroachment permits, etc.).

UTILITIES AND SERVICE SYSTEMS

Natural Gas

Table 4.14-10 below was derived with input from the Palo Alto Utility regarding natural gas demand, as illustrated by the Inputs sheet in Appendix C, Air Quality and Greenhouse Gas Emissions Modeling, of this EIR. The table shows that buildout of the Plan in the city and SOI under all four scenarios would result in an increase of natural gas use increase ranging from 3.4 million therms (Scenario 2) to 5.1 million therms (Scenario 4). These gas demand increases correspond to 11 percent (Scenario 2) and 16 percent (Scenario 4) increases at buildout (2030) over baseline (2014).

TABLE 4.14-10 NATURAL GAS USE FOR PROPOSED PLAN – FOUR SCENARIOS (CITY + SOI)

	CEQA Baseline (2014)	Scenario 1 (BAU/2030)	Scenario 2 (2030)	Scenario 3 (2030)	Scenario 4 (2030)
Residential Natural Gas (therms)	12,480,681	13,945,000	13,945,000	14,258,243	14,586,583
Commercial + Industrial + City + Other Natural Gas (therms)	19,248,740	22,278,369	21,203,586	21,758,159	22,278,369
Total Natural Gas (therms)	31,729,420	36,223,369	35,148,585	36,016,402	36,864,952
Change from 2014 (therms)		4,493,949	3,419,165	4,286,982	5,135,532

Notes:

1. Residential gas provided by Palo Alto (2014). Scenarios (2030) projected based on increase in housing units. Baseline (2014) based on a four-year average of 2011 to 2014 data.

2. Commercial + Industrial gas provided by Palo Alto (2014). Scenarios (2030) projected based on increase in employment. Baseline (2014) based on a four-year average of 2011 to 2014 data.

Source: PlaceWorks, 2015.

Implementation of the proposed Plan at buildout (2030) would result in a long-term increase in natural gas demand ranging from 11 percent to 16 percent over 2014 baseline levels within the CPAU’s service territory for gas service. The incremental increase in gas demand would average up to about one percent increase per year. A significant portion of this increase can be offset by anticipated gas energy efficiency in future years. The Ten-Year Gas Efficiency Goals for the CPAU, adopted by City Council in December 2012, identified cumulative gas efficiency savings of 2.85 percent between 2014 and 2023—excluding savings due to “codes and standards.” Increasingly stringent statewide building codes and appliance standards have resulted in substantial energy savings.

The Plan would be within the 70,000-square-mile PG&E service territory for natural gas transmission and distribution. Due to the EIR Study Area’s size and location within an urban area, development allowed by the four scenarios would not significantly increase natural gas demands within the PG&E service territory and would not require new gas supply facilities. Where new transmission/distribution infrastructure is required these projects would be subject to separate environmental review and would be required to comply with applicable regulations for construction projects, including construction permits/review for construction within public rights-of-way (e.g., grading permits, private development review, encroachment permits, etc.).

UTILITIES AND SERVICE SYSTEMS

Conservation

Proposed new development would be constructed using energy efficient modern building materials and construction practices, in accordance with California Building Standards Code (Title 24 CCR, Parts 6 and 11), and the Chapters 16.14 and 16.17 of the City's Municipal Code, which contain the Green Building Ordinance and Energy Code, respectively. The new buildings also would use new modern appliances and equipment, in accordance with the 2012 Appliance Efficiency Regulations (Title 20 CCR, Sections 1601 through 1608). Under these requirements, future development allowed by the proposed Plan would use recycled construction materials, environmentally sustainable building materials, building designs that reduce the amount of energy used in building heating and cooling systems as compared to conventionally built structures, and landscaping that incorporates water efficient irrigation systems, all of which would conserve energy.

All four scenarios inherently further objectives of energy conservation by focusing future growth in portions of the EIR Study Area containing existing infrastructure and services.

Energy supply planning in accordance with the City's *Long-term Electric Acquisition Plan* (LEAP) and *Gas Utility Long-term Plan* (GULP) would serve to ensure adequate energy supplies for development under the Plan. Energy efficiency under the Plan would be subject to the California Energy Efficiency Regulations (SB 1037, 2005) as applicable to CPAU.

As described in Section 4.14.1.1, Climate Change, sea levels along the San Francisco Bay are expected to rise up to 69 inches due to climate change.¹⁰⁹ The City's utility control center, municipal services center, and natural gas station 4 are critical facilities at risk to sea level rise. Rising sea levels pose a significant threat to Palo Alto due the increased risk of inundation of critical structures located in a floodplain and along the shoreline. The impacts associated with sea level rise are addressed in Chapter 4.6, Greenhouse Gas Emissions and Climate Change.

Applicable Regulations:

- National Energy Policy Act of 2005
- California 2012 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608)
- California Global Warming Solutions Act of 2006, *Scoping Plan*
- California Renewable Portfolio Standard
- California's Energy Efficiency Regulations (SB 1037, 2005)
- California Energy Benchmarking and Disclosure (AB 1103, 2007)
- California Energy Code (Title 24, Part 6)
- CALGreen Building Code (Title 24, Part 11)

¹⁰⁹ San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*.

UTILITIES AND SERVICE SYSTEMS

- City of Palo Alto Municipal Code: Chapter 1614, Green Building Standards Code Adopted and Amended; Chapter 1617, California Energy Code Adopted and Amended; Chapter 1220, Utility Rules and Regulations
- City of Palo Alto *Carbon Neutral Electric Resource Plan*
- City of Palo Alto *Renewable Portfolio Standard and Local Solar Plan*
- City of Palo Alto *Long Term Electricity Acquisition Plan*

Scenario 1

The existing Comprehensive Plan contains numerous policies and programs intended to ensure energy conservation is practiced in Palo Alto. Under Scenario 1, these policies would remain in place and would ensure that future development and redevelopment maximizes energy conservation and efficiency. Therefore, the impact would be less than significant.

Significance before Mitigation: Under Scenario 1, existing Comp Plan policies would be sufficient to ensure energy conservation is practiced in Palo Alto and this impact would be less than significant.

Scenarios 2, 3, and 4

The existing Comprehensive Plan contains numerous policies and programs intended to ensure energy conservation is practiced in Palo Alto. These policies would need to remain in the proposed Plan to ensure that future development and redevelopment maximizes energy conservation and efficiency. Because the proposed Plan is still in process and it has not yet been decided which policies will be retained as part of the proposed Plan, the impact is *potentially significant* under Scenarios 2, 3, and 4, requiring mitigation.

Significance before Mitigation: Under Scenarios 2, 3, and 4, policies would be needed to ensure energy conservation is practiced in Palo Alto and this impact would be potentially significant, requiring mitigation.

Mitigation Measures

Mitigation Measure UTIL-17: The following policies and programs, or equally effective language, shall be included in the proposed Plan to ensure that future development under Scenarios 2, 3, and 4 maximize energy efficiency and conservation:

- Policy: Optimize energy conservation and efficiency in new and existing residences, businesses, and industries in Palo Alto.
- Policy: Maintain Palo Alto's long-term supply of electricity and natural gas while transitioning to renewable energy and energy conservation.
- Program: Encourage establishment of public education programs addressing energy conservation and efficiency.

UTILITIES AND SERVICE SYSTEMS

- Program: Incorporate cost-effective energy conservation measures into construction, maintenance, and City operation and procurement practices.
- Program: Incorporate State and federal energy efficiency and renewable energy standards and policies in relevant City codes, regulations, and procedures for both privately-owned and City-owned projects and properties.
- Program: Evaluate the merits of electrification strategies and implement suitable programs to switch from gasoline/natural gas to electricity to achieve deep carbon emission reduction.

Significance after Mitigation: Less than Significant.

4.14.5.4 CUMULATIVE IMPACTS

The discussion under Impact UTIL-17 described the proposed Plan's impacts in relationship to the CPAU service territory for electricity and the PG&E service territory for natural gas and therefore includes a discussion of cumulative impacts.